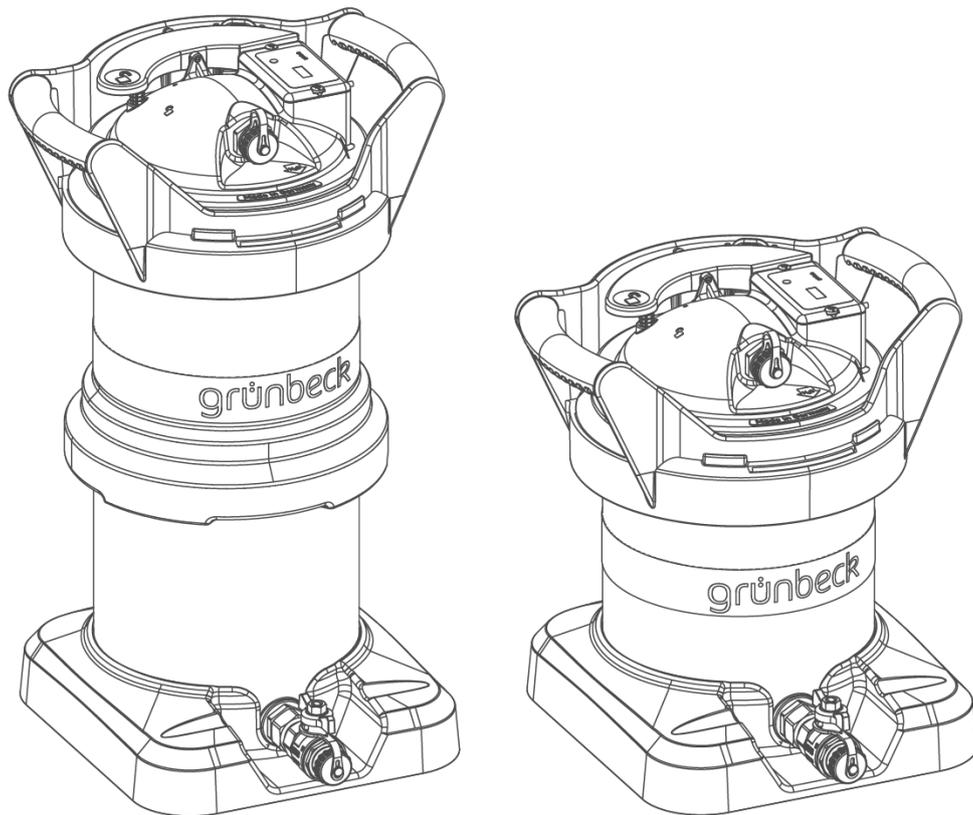




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We understand water.



Mixed bed cartridge | desaliQ:MB9/MB5

Operation manual

grünbeck

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1 Introduction

This manual is intended for owners/operators/operating companies, users as well as qualified specialists and ensures the safe and efficient handling of the product. The manual is an integral part of the product.

- ▶ Carefully read this manual and the included manuals on the components before you operate your product.
- ▶ Obey all safety and handling instructions.
- ▶ Keep this manual and all other applicable documents, so that they are available when needed.

Illustrations in this manual are for basic understanding and can differ from the actual design.

1.1 Validity of the manual

This manual applies to the products below :

- Mixed bed cartridge desaliQ:MB9
- Mixed bed cartridge desaliQ:MB5

1.2 Other applicable documents

- Manuals of accessories used
- Operation manual of desaliQ inline filter module
- Operation manual of desaliQ inline control module
- Operation manual of desaliQ basic filling module

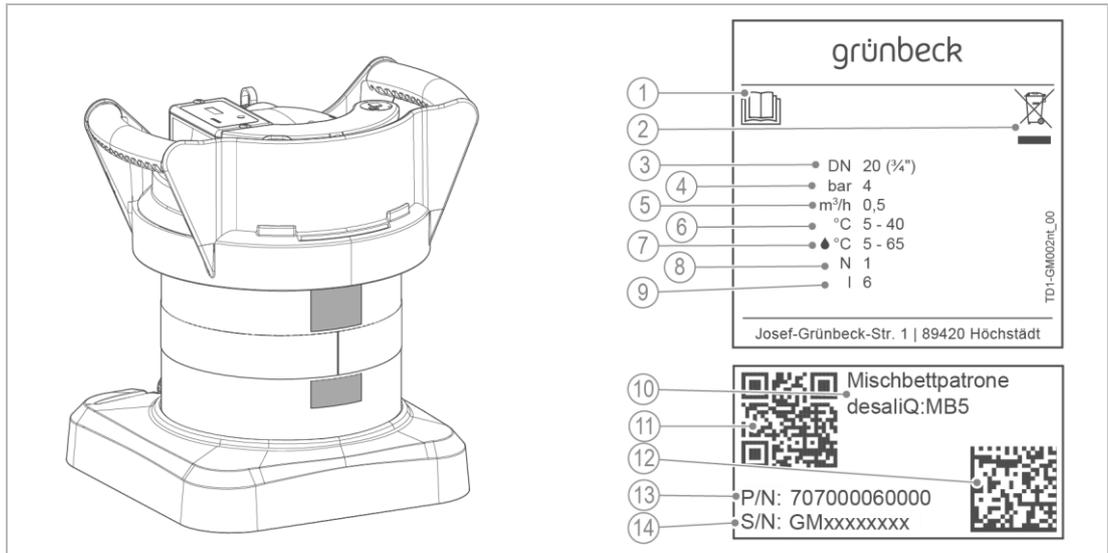
1.3 Product identification

You can identify your product based on the product designation and the order number shown on the type plate.

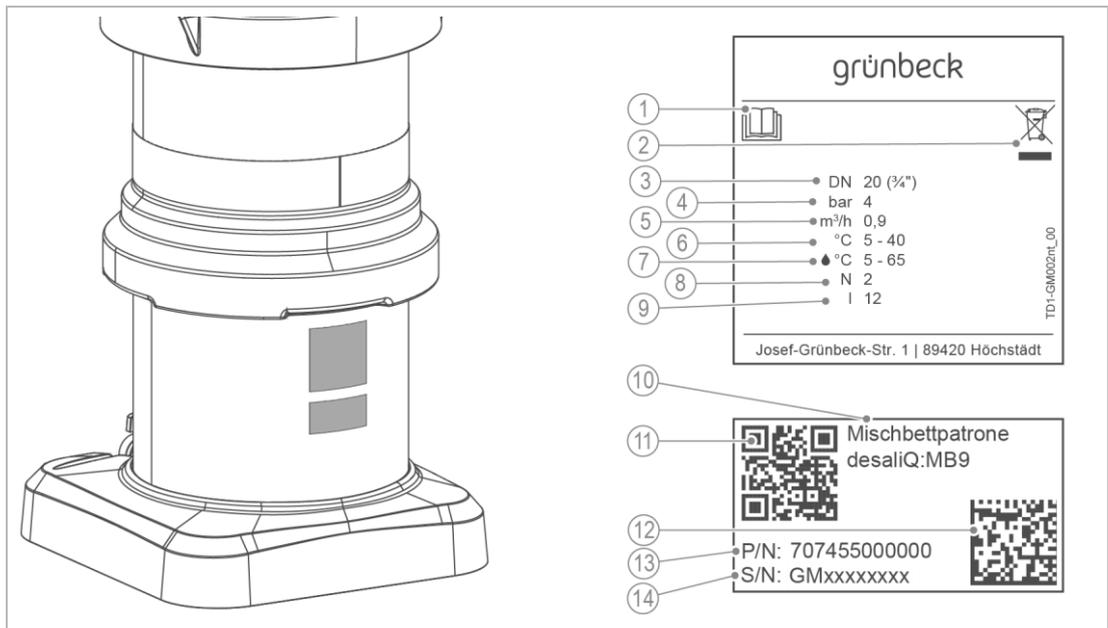
- ▶ Check whether the products given in chapter 1.1 correspond to your product.

The type plate is located on the back of the mixed bed cartridge.

desaliQ:MB5



desaliQ:MB9



Designation	
1	Obey the operation manual
2	Disposal information
3	Nominal connection diameter
4	Operating pressure
5	Nominal flow
6	Ambient temperature
7	Water temperature

Designation	
8	Number of resin bags
9	Filling volume of mixed bed resin
10	Product designation
11	QR code
12	Data matrix code
13	Order no.
14	Serial no.

1.4 Symbols used

Symbol	Meaning
	Danger and risk
	Important information or requirement
	Useful information or tip
	Written documentation required
	Reference to further documents
	Work that must be carried out by qualified specialists only
	Work that must be carried out by qualified electricians only
	Work that must be carried out by technical service personnel only

1.5 Depiction of warnings

This manual contains information and instructions that you must obey for your personal safety. The information and instructions are highlighted by a warning symbol and are structured as shown below:



SIGNAL WORD Type and source of hazard

- Possible consequences
- ▶ Preventive measures

The signal words below are defined subject to the degree of danger and might be used in the present document:

Warning symbol and signal word	Consequences if the information/instructions are ignored	
 DANGER		Death or serious injuries
 WARNING	Personal injury	Possible death or serious injuries
 CAUTION		Possible moderate or minor injuries
NOTE	Damage to property	Possible damage to components, the product and/or its functions, or an object in its vicinity

1.6 Demands on personnel

During the individual phases of the service life of the product, different people work on the product. The respective tasks require different skills.

1.6.1 Qualification of personnel

Personnel	Requirements
User	<ul style="list-style-type: none"> • No special expertise required • Knowledge of the tasks assigned • Knowledge of possible dangers in case of incorrect behaviour • Knowledge of the required protective equipment and protective measures • Knowledge of residual risks
Owner/operator/ operating company	<ul style="list-style-type: none"> • Product-specific expertise • Knowledge of statutory regulations on work safety and accident prevention
Qualified specialist <ul style="list-style-type: none"> • Electrical engineering • Sanitary engineering (HVAC and plumbing) • Transport 	<ul style="list-style-type: none"> • Professional training • Knowledge of relevant standards and regulations • Knowledge of detection and prevention of potential hazards • Knowledge of statutory regulations on accident prevention
Technical service (Grünbeck's technical service/ authorised service company)	<ul style="list-style-type: none"> • Extended product-specific expertise • Trained by Grünbeck

1.6.2 Authorisations of personnel

The table below describes which tasks may be carried out by whom.

	User	Owner/ operator/ operating company	Qualified specialist	Technical service
Transport and storage		X	X	X
Installation and mounting			X	X
Start-up/commissioning			X	X
Operation and handling	X		X	X
Cleaning	X		X	X
Inspection	X		X	X
Maintenance		X	X	X
semi-annually				
annually		X	X	X
Troubleshooting		X	X	X
Repair			X	X
Decommissioning and restart/recommissioning			X	X
Dismantling and disposal			X	X

1.6.3 Personal protective equipment

- ▶ As an owner/operator/operating company, make sure that the required personal protective equipment is available.

The components below fall under the heading of personal protective equipment (PPE):



Protective gloves



Protective footwear



Protective overall



Safety goggles

2 Safety

2.1 Safety measures

- Only operate your product if all components are installed properly.
- Obey the local regulations on drinking water protection, accident prevention and occupational safety.
- Do not make any changes, alterations, extensions or program changes on your product.
- Only use genuine spare parts for maintenance or repair.
- Keep the premises locked against unauthorised access to protect imperilled or untrained groups of persons from residual risks.
- Comply with the maintenance intervals (refer to chapter 8.2).

2.1.1 Mechanical hazards

- You must never remove, bridge, or otherwise tamper with safety equipment.
- Risk of slipping due to escaping water.
- Risk of tripping due to hoses on the floor. Route the hoses away from traffic routes.
- Make sure that the product is set up in a way that it cannot tip over and that the stability of the product is guaranteed at all times.

2.1.2 Pressure-related hazards

- Components can be under pressure. There is a risk of injuries and damage to property due to escaping water and unexpected movement of components. Check the pressure lines for leaks at regular intervals.
- Before starting any repair and maintenance work, make sure that all affected components are depressurised.

2.1.3 Groups of persons requiring protection

- Children must not play with the product.
- This product is not designed to be used by persons (including children) with reduced capabilities, lack of experience or lack of knowledge. Unless they are supervised, have been instructed on the safe use of the product and understand the resulting hazards.
- Cleaning and maintenance must not be carried out by children.

2.2 Product-specific safety instructions



WARNING

Risk to health when coming into contact with the special mixed bed resin.

- May cause severe eye irritation.
- May cause irritation of the respiratory tract and the skin if dust develops.
- ▶ Use personal protective equipment.
- ▶ Comply with the safety data sheets and strictly follow the instructions.
- ▶ Obey the instructions in case of an emergency.



CAUTION

Mechanical damage to the mixed bed cartridge.

- Danger due to escaping water and unexpected movement of system parts.
- Functional impairment of components.
- ▶ Only use undamaged mixed bed cartridges.

NOTE

Floor drains that discharge to a lifting system do not work in case of a power failure.

- Possible flooding of rooms if no floor drain is available.
- ▶ Check whether there is a floor drain present at the installation site.
- ▶ Install a safety device with water stop function.

2.3 Approved resin

The mixed bed cartridges must only be operated with the following resin:

- desaliQ resin bag

Other resins must not be used.



The special mixed bed resin comes filled in bags and sealed.

The resin bags must only be used as packaged units.

The exhausted resin bags can be disposed of as household waste.

2.4 Conduct in emergencies

2.4.1 In case of water leaks

1. Close the shut-off valves upstream and downstream of the product.
2. Locate the leak.
3. Eliminate the cause of the water leak.

3 Product description

3.1 Intended use

The mixed bed cartridges desaliQ:MB9 and desaliQ:MB5 are designed to produce ultra-pure water and to filter heating water, and can be used in the following sectors:

In combination with **desaliQ resin bags**:

- Full demineralisation of raw water of drinking water quality
- Full demineralisation during ongoing heating operation at max. 4 bar and 65 °C

In combination with **desaliQ inline filter module**:

- Filtration of undissolved impurities such as rust or dirt particles from the heating water.

In combination with **desaliQ resin bags** and **desaliQ inline filter module**:

- With desaliQ:MB9 only:
Full demineralisation and filtration of undissolved impurities such as rust or dirt particles from the heating water during on-going heating operation.

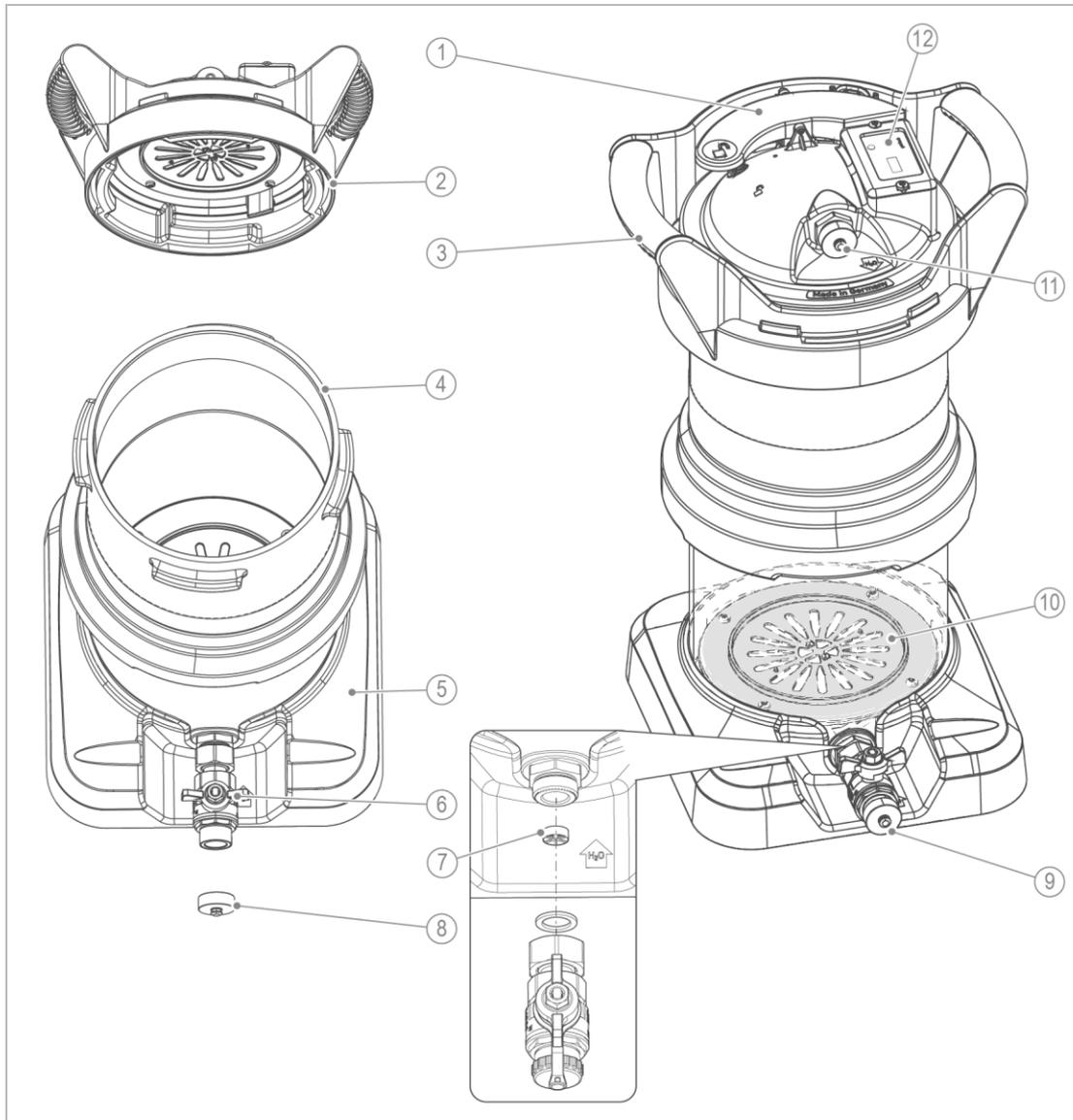
3.2 Foreseeable misuse

The mixed bed cartridges desaliQ:MB9 and desaliQ:MB5 **must not** be used in the following sectors:

- Treatment of raw water to be used as drinking water
- Operation with gas cushions

3.3 Product components

The product components apply to the mixed bed cartridges desaliQ:MB9 and desaliQ:MB5.



Designation	
1	Unlocking and venting lever
2	Lid
3	Handle
4	Tank
5	Stand
6	Shut-off valve (raw water)

Designation	
7	Flow stabiliser
8	Cap
9	Raw water connection (inlet)
10	Screen element
11	Pure water connection (outlet)
12	Conductivity meter

3.4 Accessories



You can retrofit your product with accessories. Please contact your local Grünbeck representative or Grünbeck's headquarters in Hoechstädt/Germany for details.

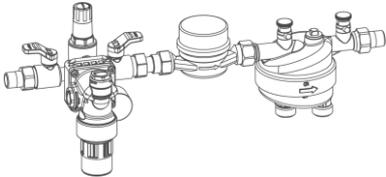
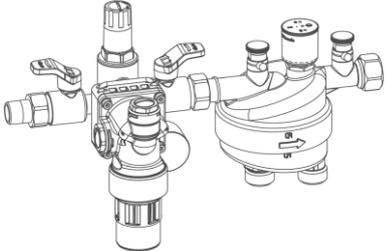
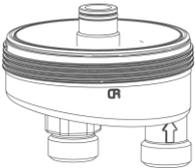
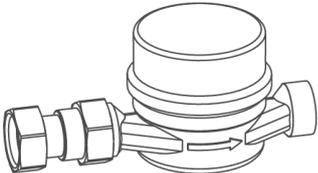
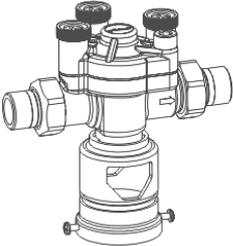
Illustration	Product	Order no.
	desaliQ hose kit 2 connection hoses with a length of 1.5 m to connect upright full demineralisation units with filling sections thermalIQ:FB2 or thermalIQ:FB13i.	707 850
	Filling section thermalIQ:FB13i For full demineralisation of water of drinking water quality for easy and quick initial filling and make-up water feed of closed heating systems. Consisting of: <ul style="list-style-type: none"> • Filling group with system separator thermalIQ:SB13 • Water meter with double screw connection • Treatment group thermalIQ:HB2 with connection adapter 	707 770
	Filling section thermalIQ:FB2 For full demineralisation of water of drinking water quality for easy and quick initial filling and make-up water feed of closed heating systems. Consisting of: <ul style="list-style-type: none"> • Filling group with system separator thermalIQ:SB13 • Treatment group thermalIQ:HB2 with connection adapter 	707 760
	desaliQ connection adapter Adapter to connect the mixed bed cartridge to the treatment group thermalIQ:HB2.	707 276
	Water meter Water meter with connection material and double screw connection for connection to the raw water inlet pipe by means of 3/4" male thread.	702 845
	Euro system separator GENO-DK 2-Mini To secure systems and devices that might endanger the drinking water as per DIN EN 1717.	133 100

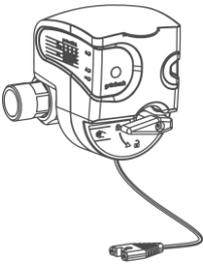
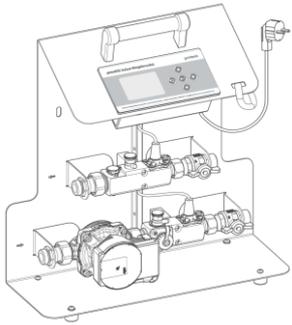
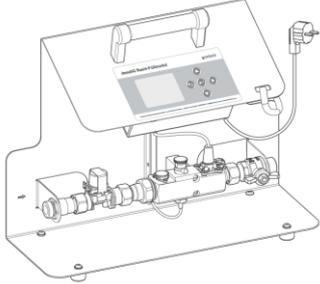
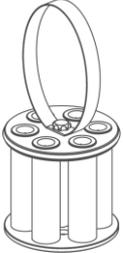
Illustration	Product	Order no.
	Safety device protectliQ:A20	126 400
<p>The protectliQ safety device is a product to protect against water damage in one and two-family homes.</p>		
	Backwash filter pureliQ:RD	101 370
<p>The backwash filter pureliQ:RD filters the drinking water and protects the domestic water system according to DIN EN 806.</p>		
	Analysis case	707 190
<p>Sortimo case containing: Water test kits for pH value, conductivity, total hardness and molybdenum concentration</p>		
	Analysis case	707 192
<p>Sortimo case containing: Water test kits for pH value, conductivity and total hardness</p>		
	Combined measuring device for pH and conductivity – complete	170000010000
<p>To measure pH value and conductivity.</p>		
without illustration	Digital manual measuring device	170 185
<p>To measure pH value, Redox value, temperature and conductivity.</p>		

Illustration	Product	
	desaliQ inline control module	707000030000
	desaliQ basic filling module	707000050000
	desaliQ inline filter module	707000010000

3.5 Functional description

3.5.1 Filtration

In combination with **desaliQ inline filter module**:

The unfiltered heating water flows from the bottom through the inlet side of the cartridge and via the flow distributor. Then, the water containing the particles passes the magnetic rod. Magnetic particles such as iron particles/magnetite, etc. are attracted and removed from the heating water.

The pre-cleaned water then flows through 6 filter elements with a pore size of 5 µm.

By using the strap, the filter module can be easily removed from the mixed bed cartridge.

3.5.2 Demineralisation

In combination with **desaliQ resin bags**:

Physical

Via an interior distribution system, 1 or 2 resin bags filled with mixed bed resin are steadily flown through from bottom to top.

The fully demineralised water (demi water) is directed to the tank outlet via a collection element located at the tank lid.

Chemical

Mixed bed resins consist to one part of a highly acid cation exchanger resin and to the other part of a highly alkaline anion exchanger resin. In the mixed bed cartridges, these two components are present in a completely mixed state.

The cation exchanger resin removes all positively charged ions, the so-called cations, from the raw water. All cations contained in the water, such as calcium, magnesium, sodium, are exchanged for H^+ ions.

In the demineralisation process, the anion exchanger resin is used to filter off the negatively charged ions, the so-called anions. All anions contained in the water, such as nitrate, phosphate, sulphate, chloride and hydrogen carbonate, are exchanged for OH^- ions.

Full demineralisation removes almost all undesired components from the raw water. Thanks to the highly alkaline anion exchanger resin, silicic acids and carbon dioxide are also filtered off. The H^+ and OH^- ions generated during the exchange process combine to H_2O . This results in ultra-pure water.

Demineralisation of raw water

The main application of the desaliQ mixed bed cartridge is the full demineralisation of raw water for easy and quick filling and make-up water feed of heating systems as well as full demineralisation in the ongoing heating operation (max. 4 bar, 65 °C). The raw water is directed to the inlet of the mixed bed cartridge via an optional system separator and a fine filter.

4 Transport, set-up and storage

4.1 Shipping/Delivery/Packaging

The product is packed in a cardboard box.

- ▶ Upon receipt, immediately check the product for completeness and transport damage (refer to chapter 5.3).
- ▶ In case of visible transport damage, proceed as follows:
 - Do not accept the delivery or only accept it under reserve.
 - Record the extent of damage on the transport documents or on the delivery note of the carrier.
 - Initiate a complaint.
- ▶ Transport the product in its original packaging only.
- ▶ Dispose of the packaging material in an environmentally sound and appropriate manner only after installation of the product.

4.2 Transport/Set-up

- ▶ Transport the mixed bed cartridge in an upright position – do not tilt it.
- ▶ Use both handles for transport.

4.3 Storage

- ▶ Protect the product from the impacts below when storing it:
 - Dampness, moisture
 - Environmental impacts such as wind, rain, snow, etc.
 - Frost, direct sunlight, severe heat exposure
 - Chemicals, dyes, solvents and their vapours

5 Installation

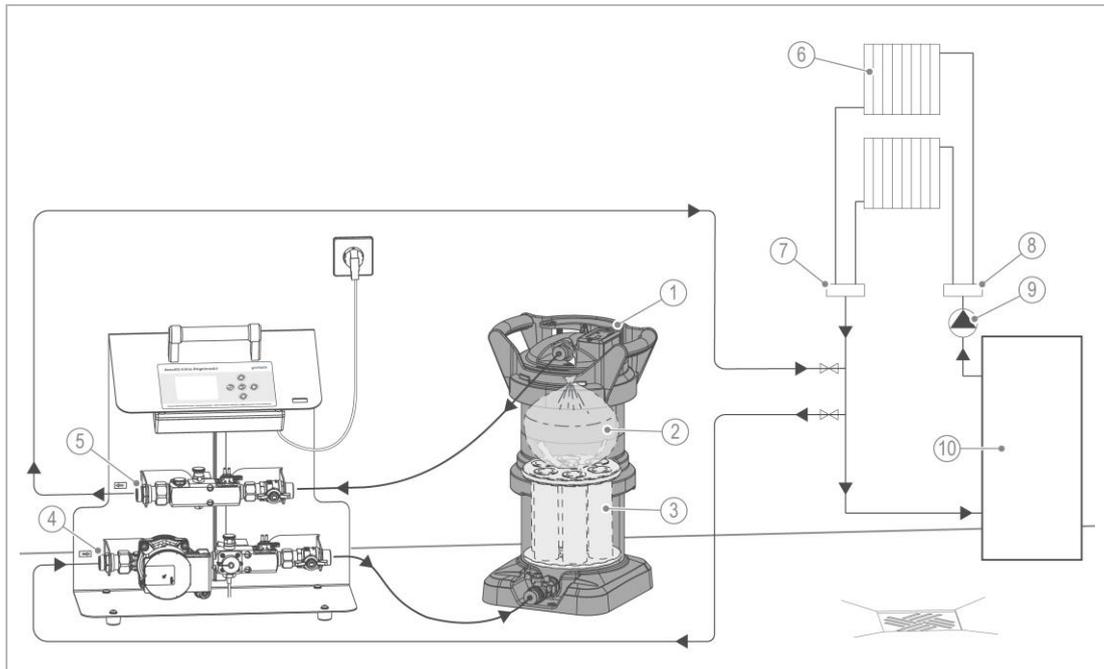


CAUTION

Risk of contaminated drinking water if there is no system separator present.

- The mixed bed cartridges are not intrinsically safe. If the mixed bed cartridges are installed without a fitting and there is no system separator downstream of the water connection to the house, then there is a risk of the drinking water becoming contaminated.
- ▶ Install a system separator upstream of the mixed bed cartridge.

Installation example desaliQ:MB9 (partial flow treatment)



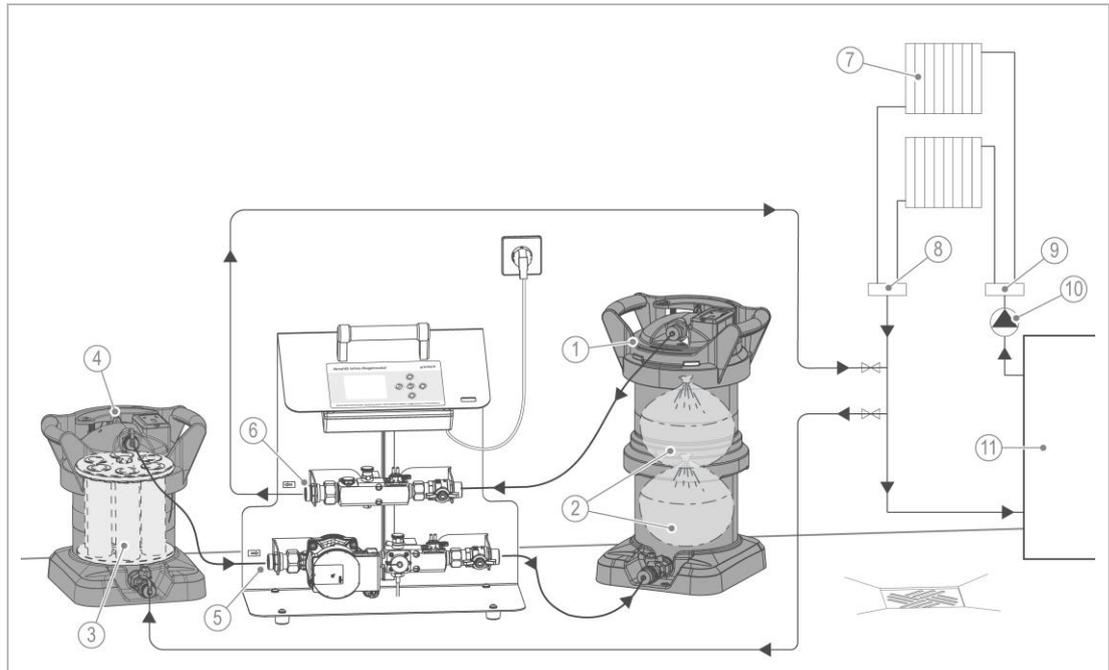
Designation

- | | |
|---|--|
| 1 | Mixed bed cartridge desaliQ:MB9 |
| 2 | desaliQ resin bag |
| 3 | desaliQ inline filter module |
| 4 | Connection from heating circuit (pump section) |
| 5 | Connection to heating circuit (sensor section) |

Designation

- | | |
|----|---------------------------|
| 6 | Consumer |
| 7 | Return of heating circuit |
| 8 | Supply of heating circuit |
| 9 | Circulation pump |
| 10 | Heating system |

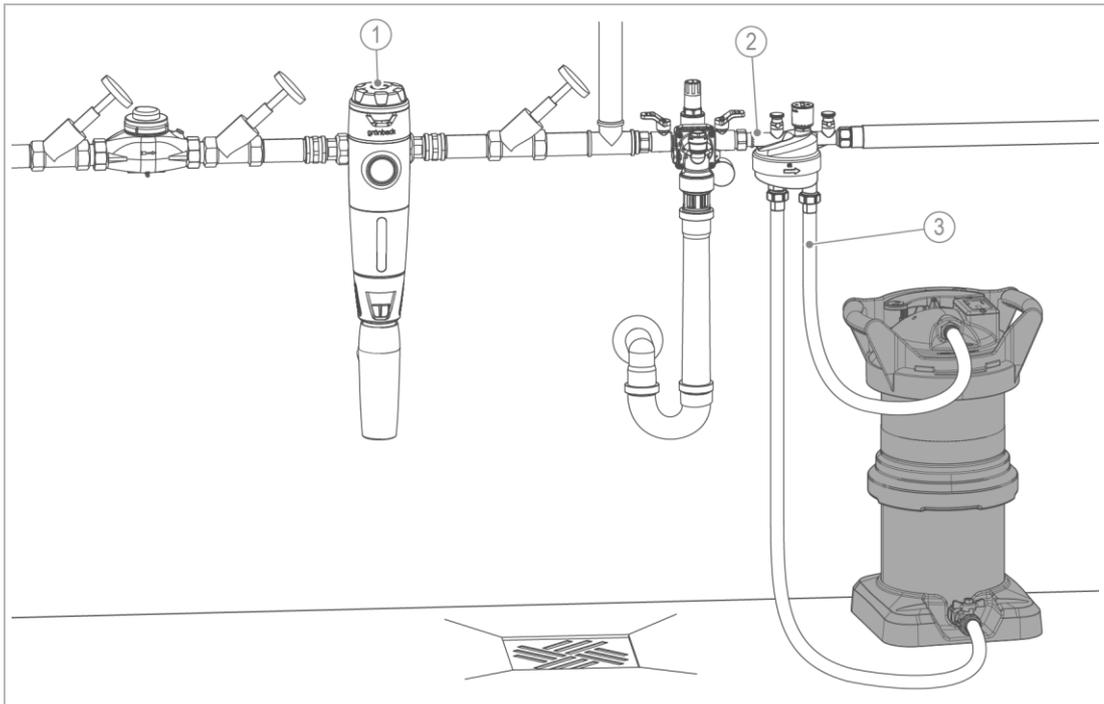
Installation example desaliQ:MB9 and desaliQ:MB5 (partial flow treatment)



Bezeichnung	
1	Mixed bed cartridge desaliQ:MB9
2	desaliQ resin bags (2x)
3	desaliQ inline filter module
4	Mixed bed cartridge desaliQ:MB5
5	Connection from heating circuit (pump section) and upstream desaliQ:MB5

Bezeichnung	
6	Connection to heating circuit (sensor section)
7	Consumer
8	Return of heating circuit
9	Supply of heating circuit
10	Circulation pump
11	Heating system

Installation example desaliQ:MB9 (filling the heating system)



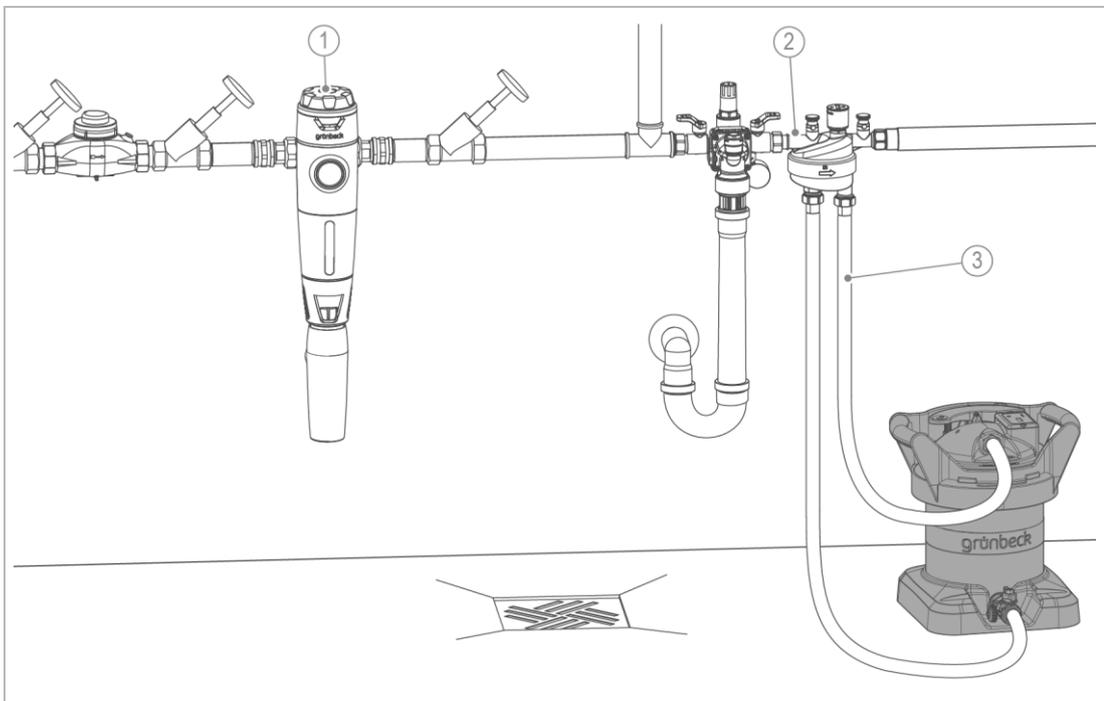
Designation

- 1 Drinking water filter pureliQ:RD
- 2 Filling section thermalIQ:FB2 with connection adapter

Designation

- 3 desaliQ hose kit

Installation example desaliQ:MB5 (filling the heating system)



Designation

- 1 Drinking water filter pureliQ:RD
- 2 Filling section thermalIQ:FB2 with connection adapter

Designation

- 3 desaliQ hose kit

5.2 Requirements for the installation site

Obey local installation directives, general guidelines and technical specifications.

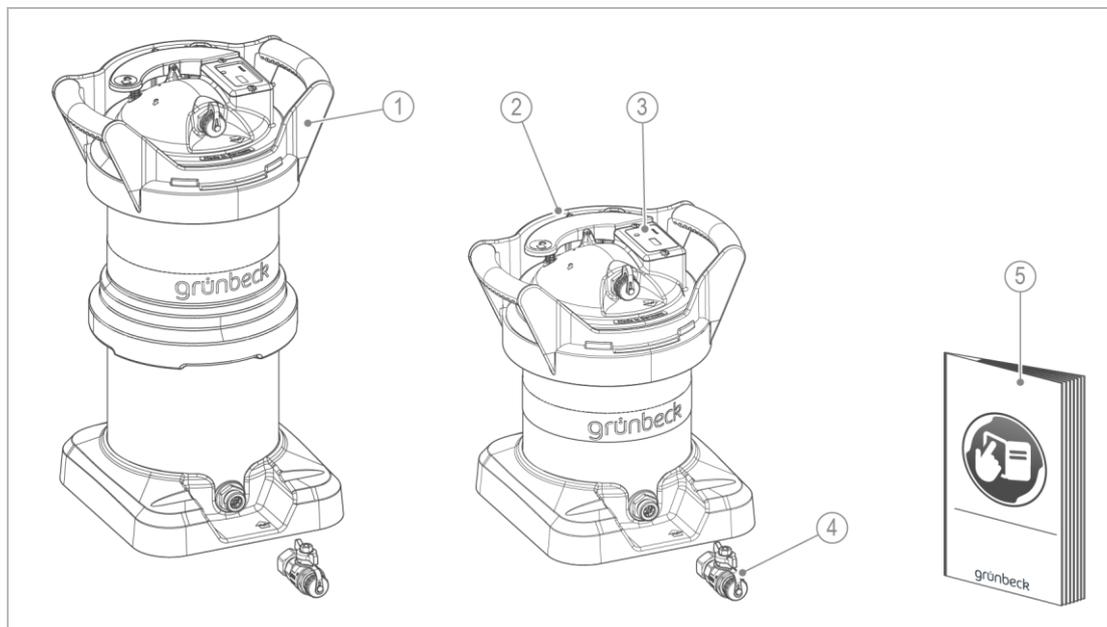
- Protection from frost, severe heat exposure and direct sunlight
- Protection from chemicals, dyes, solvents and their vapours
- Access for maintenance work (take note of space required)
- Sufficiently illuminated as well as aerated and ventilated
- Horizontal installation surface with sufficient load-bearing capacity to support the operating weight of the product

Water installation

- Drinking water filter installed upstream and pressure reducer
- Floor drain or corresponding safety device with water stop function (e.g. safety device protectliQ)

5.3 Checking the scope of supply

You will receive 1 mixed-bed cartridge desaliQ: MB9 filled with 2 resin bags or 1 desaliQ:MB5 filled with 1 resin bag.



Designation

- | | |
|---|---------------------------------|
| 1 | Mixed bed cartridge desaliQ:MB9 |
| 2 | Mixed bed cartridge desaliQ:MB5 |
| 3 | Integrated conductivity meter |

Designation

- | | |
|---|---------------------------|
| 4 | Shut-off valve incl. seal |
| 5 | Operation manual |

► Check the scope of supply for completeness and damage.

5.4 Installing the product



The mixed bed cartridge desaliQ:MB9 is filled with 2 resin bags at the factory.
 The mixed bed cartridge desaliQ:MB5 is filled with 1 resin bag at the factory.
 Therefore, it is not necessary to fill the mixed bed cartridge for initial installation.



CAUTION

System parts can be subject to overpressure.

- Risk of injury due to escaping water and unexpected movement of system parts.
- ▶ Install a suitable pressure reducing device in the pressurised line upstream of the mixed bed cartridge.
- ▶ Install a safety valve in the pressurised line upstream of the mixed bed cartridge which is approved for the specified pressure range.
- ▶ Make sure that the opening pressure set on the safety valve does not exceed the maximum permissible operating pressure indicated on the type plate.

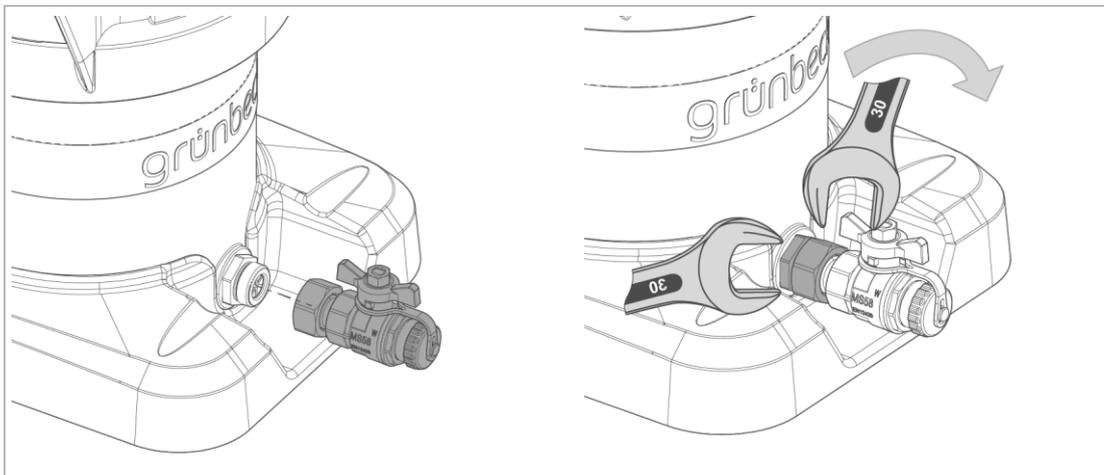


CAUTION

Hot surfaces when used with high water temperatures.

- Risk of burns in case of temperatures exceeding 55 °C.
- ▶ Use protective gloves.
- ▶ Only move the mixed bed cartridge using the carrying handles.

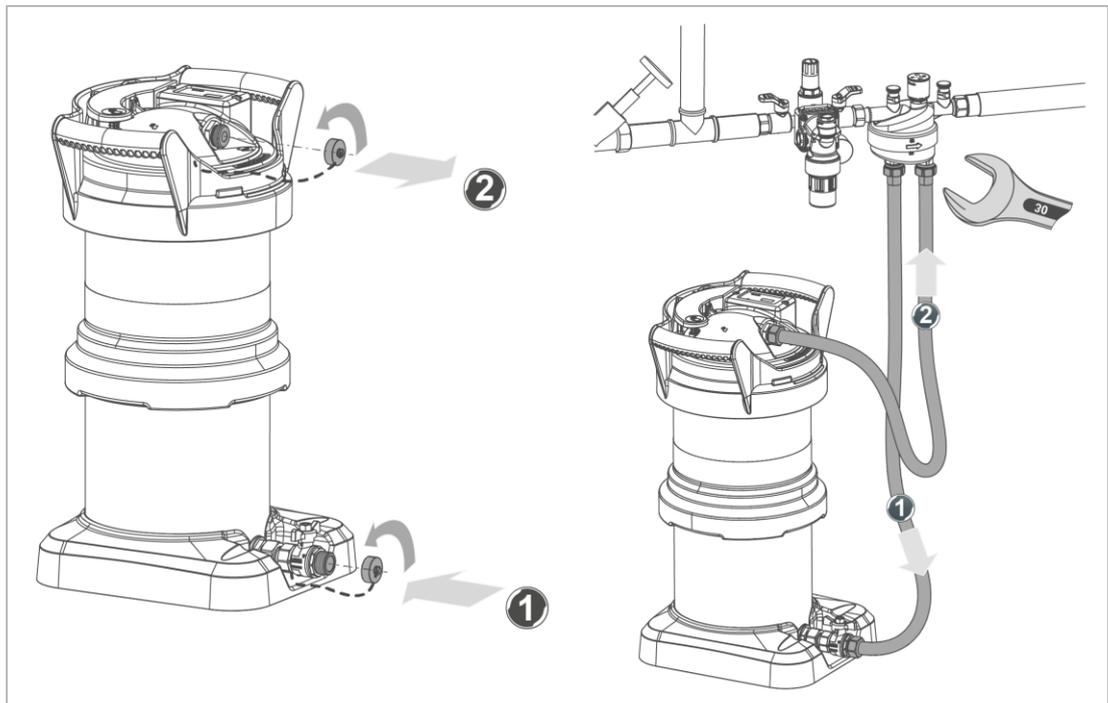
5.4.1 Preliminary work



- ▶ Install the shut-off valve - with the seal being inserted - on the raw water connection (inlet) of the mixed bed cartridge.

5.4.2 Connecting the connection hoses

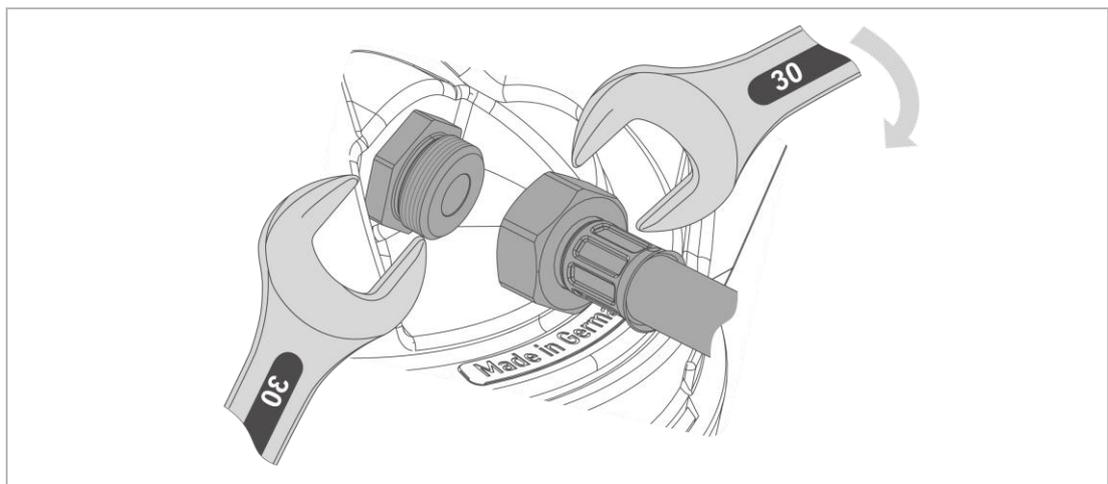
- ▶ Place the mixed bed cartridge in an upright position at a stable/level location.



NOTE

Screw on the connection hoses to the double nipples in a way that they cannot turn.

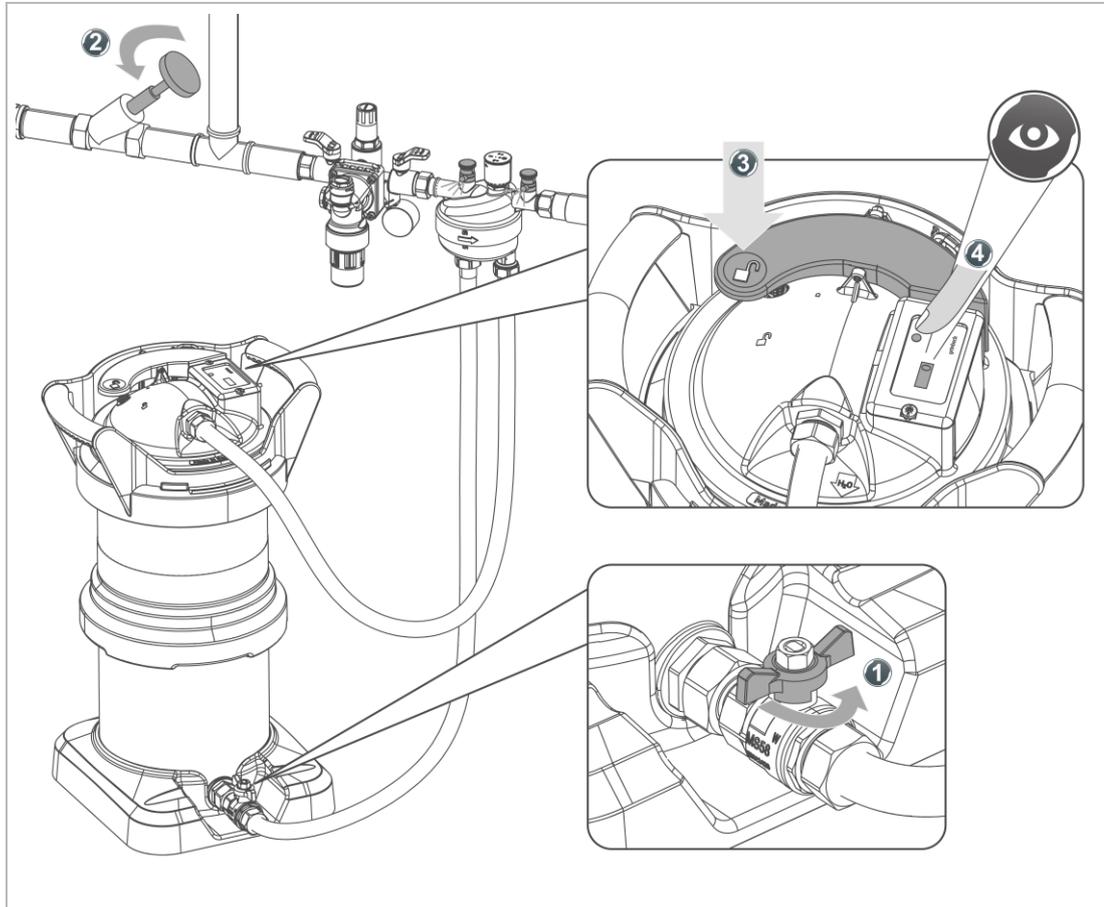
- A turning double nipple that is screwed in too far can damage the product.
- ▶ Secure the double nipple against turning when screwing on the connection hoses.



1. Connect the inlet hose to the raw water inlet of the mixed-bed cartridge and to the raw water connection of the fitting.
2. Connect the outlet hose to the pure water outlet of the mixed-bed cartridge and to the pure water connection of the fitting.

6 Start-up/commissioning

6.1 Putting the product into operation



1. Open the shut-off valve at the raw water inlet of the mixed bed cartridge.
2. Slowly open the shut-off valves of the water inlet and outlet.
3. Press the green lever to vent the mixed bed cartridge.
4. Leave all valves open.
5. Switch on the conductivity meter.
 - » 0 appears on the display.



The conductivity meter switches off automatically after approx. 10 minutes.



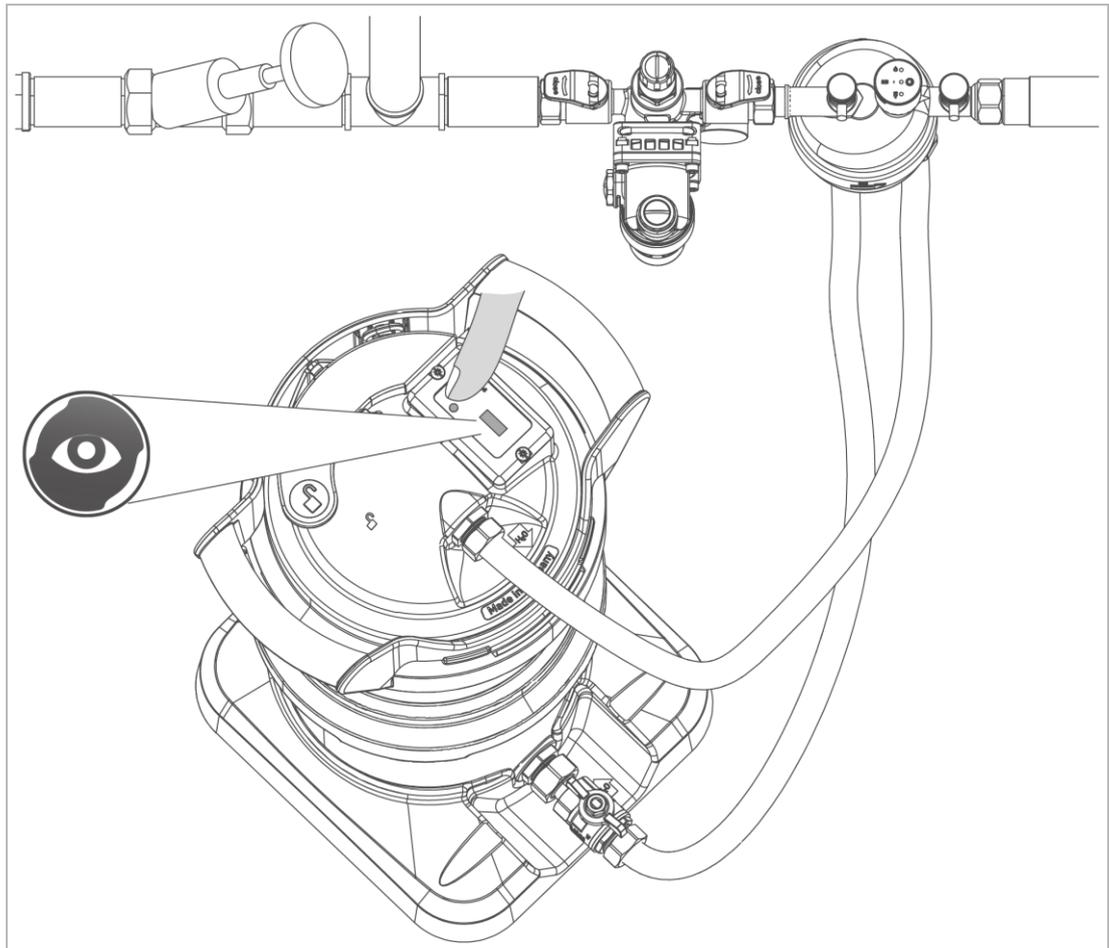
The conductivity meter is not temperature-compensated, i.e. in case of water temperatures exceeding 25 °C, the conductivity values shown are too high.

In case of higher temperatures (e.g. in case of demineralisation of circulation water during heating operation), the conductivity of the pure water must be determined by means of a temperature-compensated measuring device (e.g. order no. 170 185 or 170000010000).

7 Operation

7.1 Querying the system status

- ▶ Regularly inspect the mixed bed cartridge during operation.



- ▶ Make sure that all hoses are connected securely.
- ▶ Check the mixed bed cartridge and the connections for leaks.
- ▶ Check the lid for a tight fit.
- ▶ Check the conductivity. Read off the display.
- ▶ Replace the resin as soon as the display indicates the determined limit. (We recommend 50 $\mu\text{S}/\text{cm}$ max.)



The conductivity meter is not temperature-compensated.

7.2 Replacing the resin bags or the desaliQ inline filter module

7.2.1 Preliminary work



CAUTION

Escaping liquids.

- Risk of slipping and falling.
- ▶ Make sure that the required occupational safety is maintained during the replacement process.
- ▶ Use safety shoes and protective gloves.

- ▶ Close the shut-off valves at the water inlet and water outlet.
- ▶ If necessary, drain residual water at a water withdrawal point.
- ▶ Make sure that a floor drain is free, so that the residual water can be drained.

7.2.2 Removing and inserting the desaliQ inline filter module

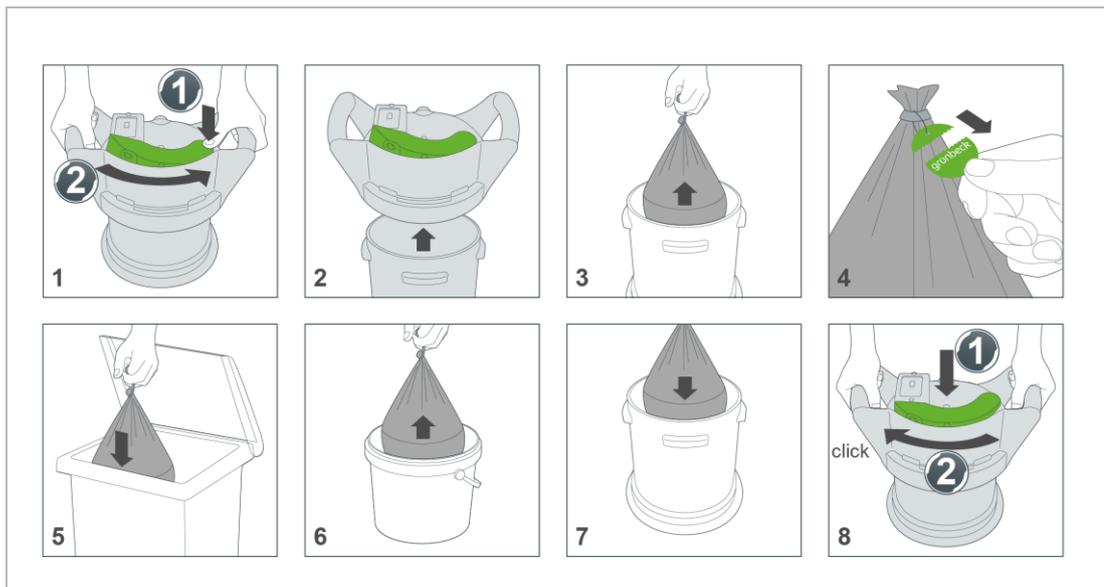


Obey the operation manual of the desaliQ inline filter module.

7.2.3 Removing exhausted resin bags



Comply with supplementary sheet TDb-00084nt of the desaliQ resin bags which contains safety information and instructions on replacement and disposal.



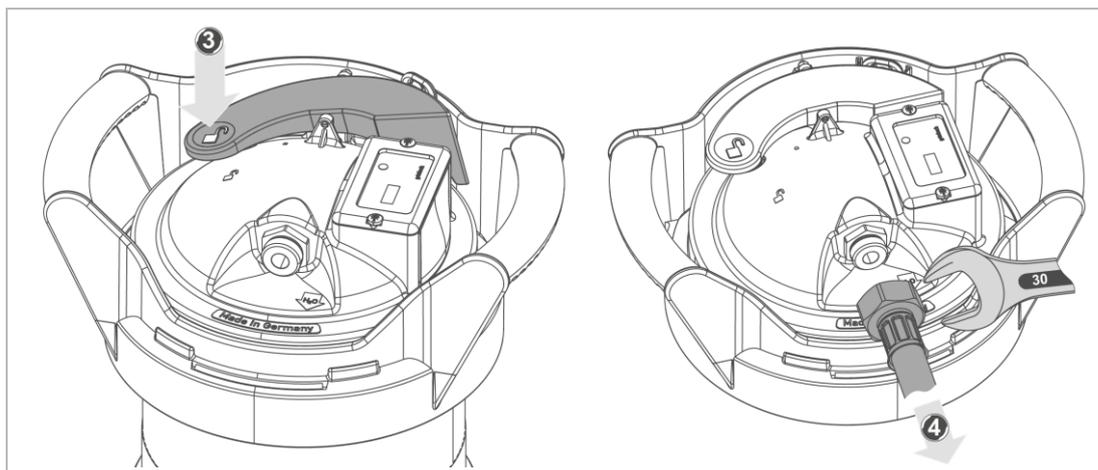
If the resin bags need to be replaced during a treatment process (connected mixed bed cartridge), please take the following into account:



- It is neither necessary to remove the inlet and outlet connection hoses nor to drain the mixed bed cartridge.
- This would slow down the pressure equalisation and thus make removing and inserting the resin bags more difficult.
- During the replacement process, residual water can escape from the open tank.
- The exhausted resin bags are wet and can drip.

NOTE Water enters the conductivity measuring cell.

- Functional failure due to splash water and dampness in the housing of the conductivity measuring cell
- ▶ Avoid water on the housing/display of the conductivity measuring cell.
- ▶ Do not put any wet resin bags onto the conductivity measuring cell.

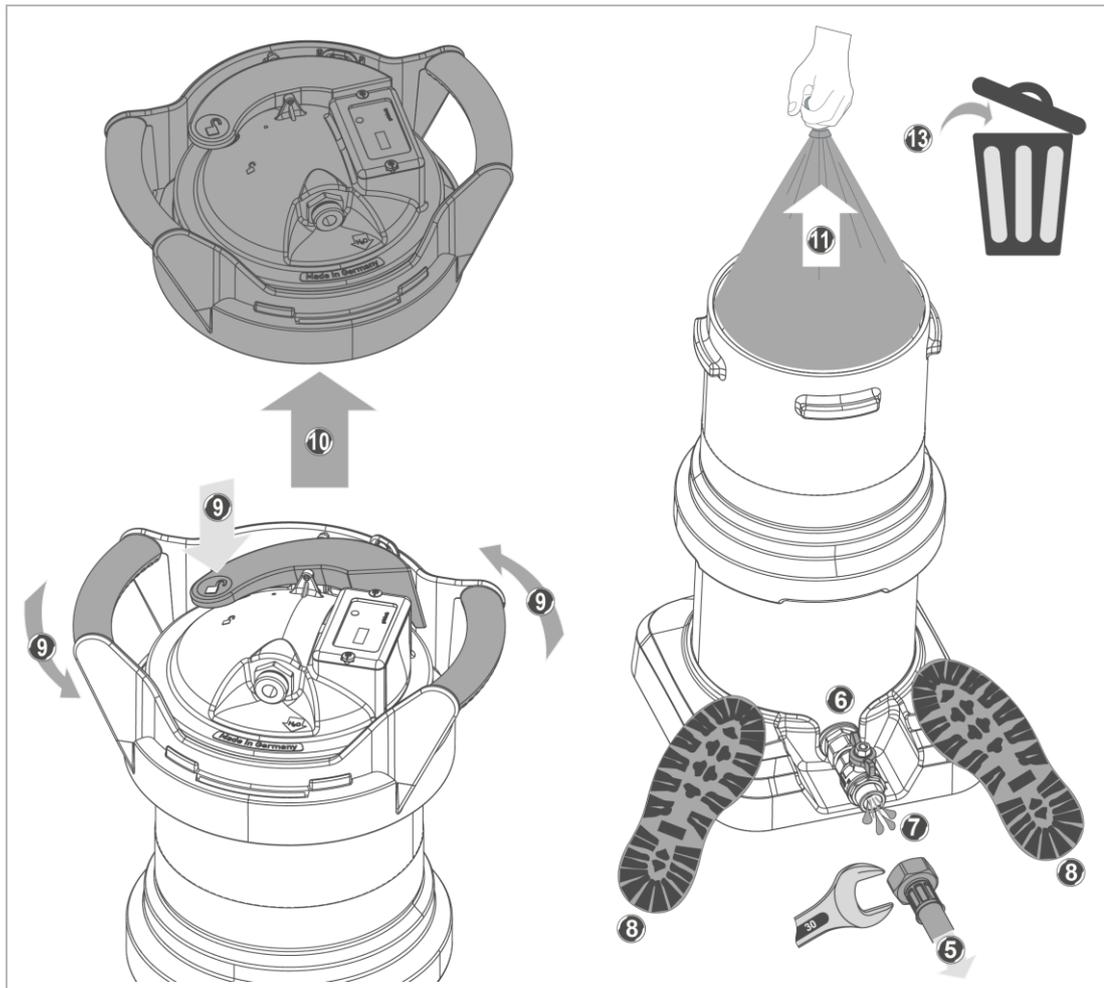


1. Close the shut-off valve at the raw water connection (inlet) and at the pure water connection (outlet).
2. Close the shut-off valves at the water inlet and outlet.
3. Press the green lever until the mixed bed cartridge is depressurised.
4. Remove the outlet hose (pure water outlet) from the mixed bed cartridge.

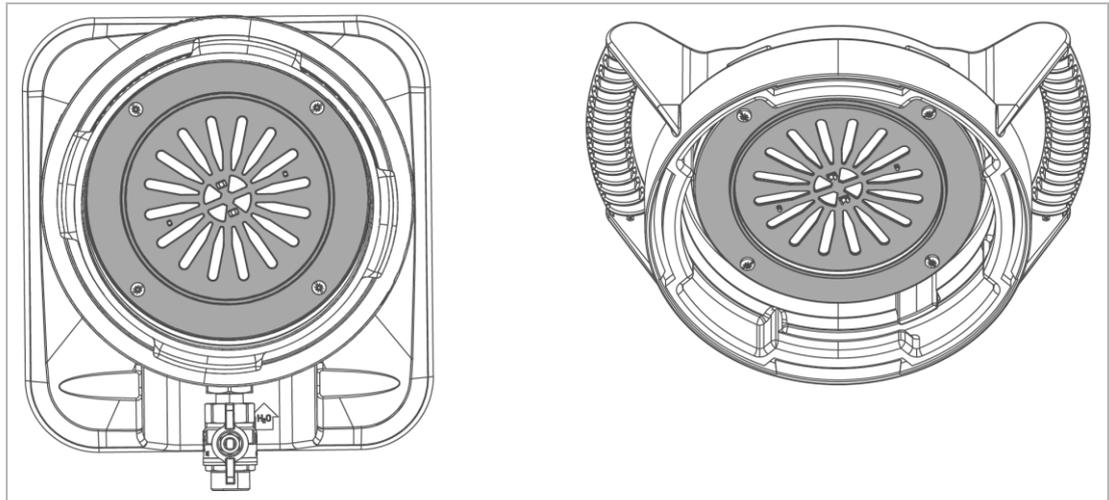


CAUTION Hot water escaping when used with high water temperatures.

- Risk of scalding
- ▶ Use protective gloves.
- ▶ Let the water cool down to ≤ 30 °C.



5. Remove the inlet hose from the raw water inlet of the mixed bed cartridge.
6. Open the shut-off valve on the raw water connection and leave it open.
7. Let the mixed bed cartridge drain completely.
8. Secure the mixed bed cartridge with your feet.
9. Slightly push down the lid and turn it counter-clockwise by a 1/8 turn.
 - » The lid is unlocked.
10. Remove the lid and put it down.
11. Pull out the exhausted resin bags by hand.
12. Tear off the tear-off label at the resin bags.
 - » That way, you can safely identify exhausted resin bags and prevent mix-ups.
13. Dispose of the resin bags.



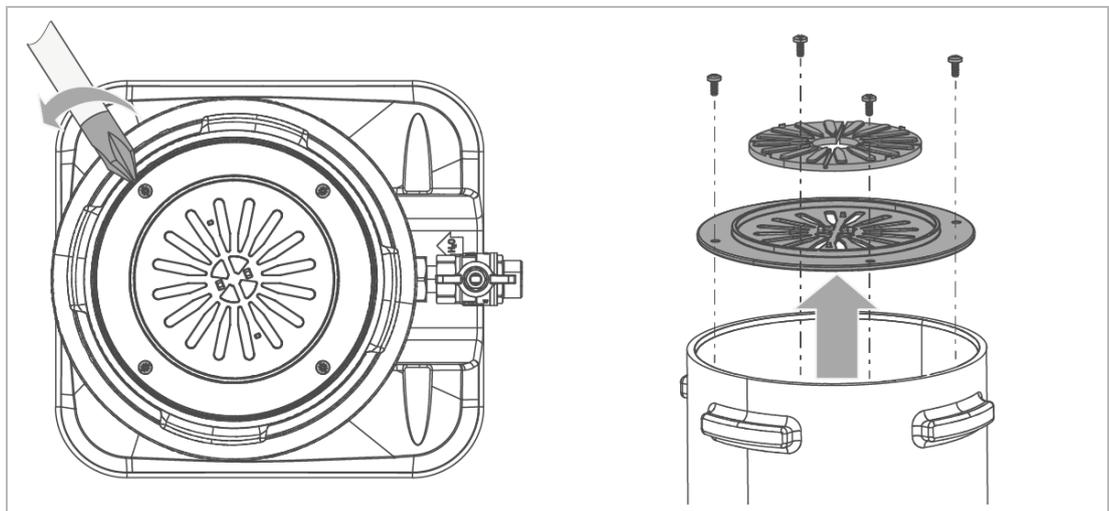
14. Remove impurities from the screen elements at the bottom and in the lid.

7.2.3.1 Cleaning the screen elements



The screen element acting as flow distributor at the bottom of the mixed bed cartridge can be clogged after use with a desaliQ inline filter module.

► Proceed as follows to clean the screen element at the bottom:



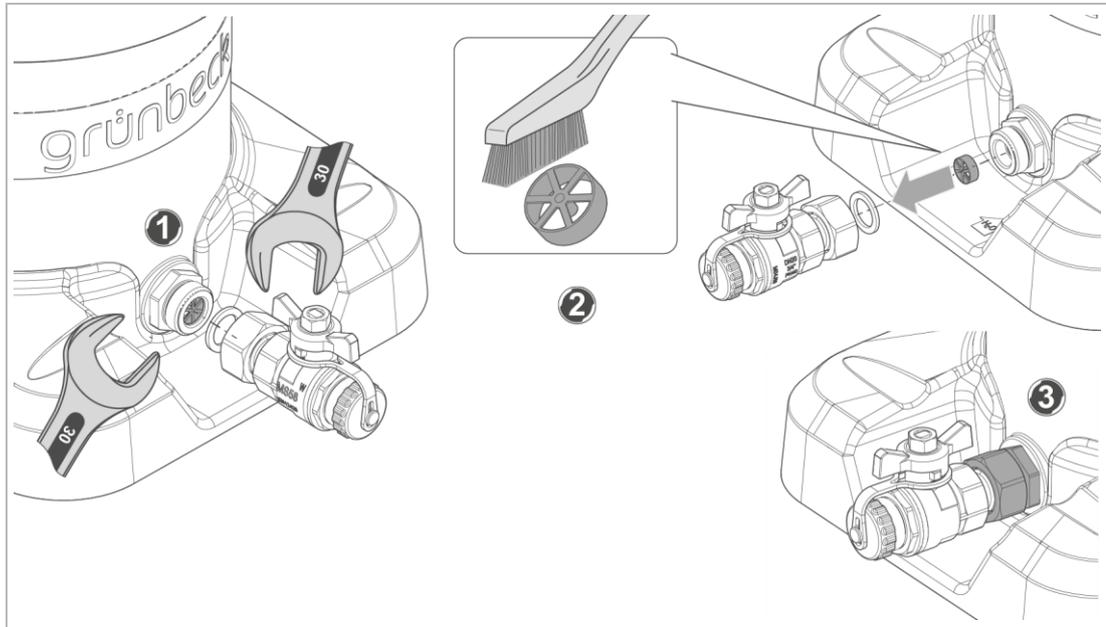
1. Loosen the screw connections of the lower screen element at the bottom.
2. Remove the screen element.
3. Wash out the screen element with water and let it dry.
4. Insert the screen element again and fix it with the screw connections.

7.2.3.2 Cleaning the flow stabiliser



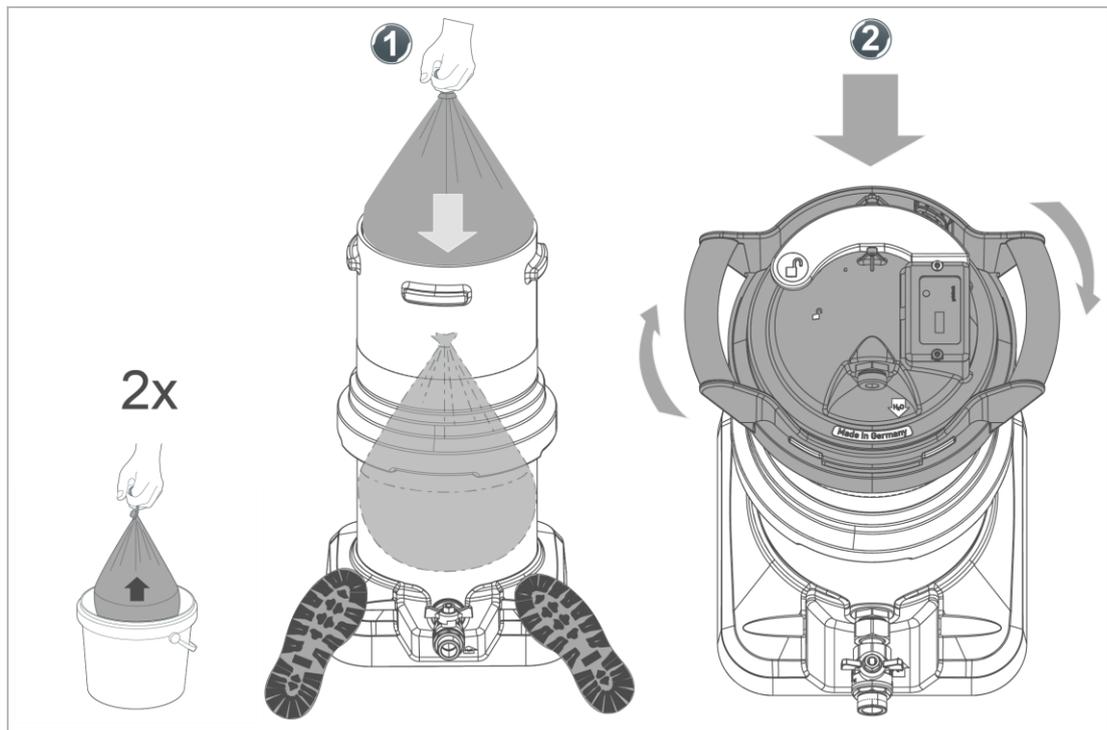
The flow stabiliser at the inlet of the mixed bed cartridge can be clogged after one or several uses with the desaliQ inline filter module.

► Proceed as follows to clean the flow stabiliser:

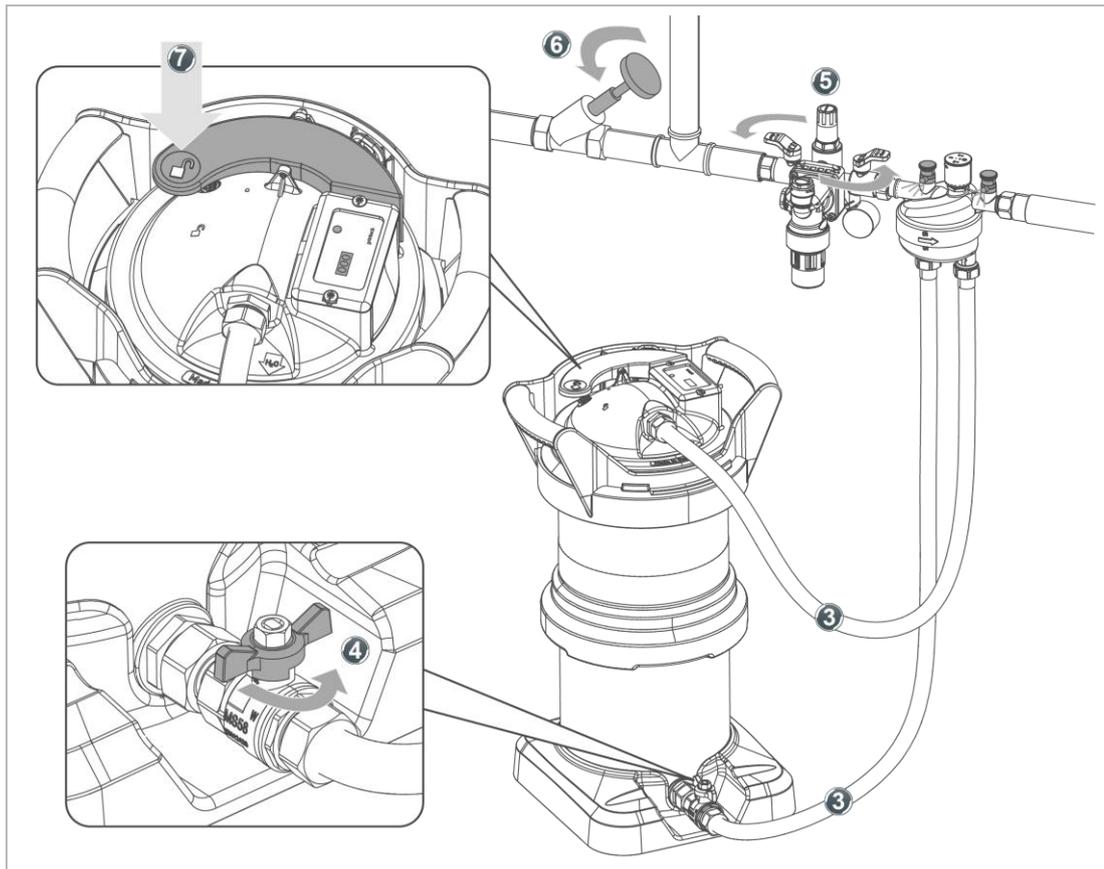


1. Remove the shut-off valve.
 - a Remove the seal.
15. Remove the flow stabiliser and clean it using a brush and water.
16. Insert the flow stabiliser into the double nipple (pay attention to the direction).
 - a Screw on the shut-off valve with the seal inserted.

7.3 Inserting new resin bags



1. Insert the new resin bags.
 - a Check for correct position: Seam parallel with the edge of the tank, tear-off label facing upwards.
 -  If the resin bag is positioned incorrectly, the raw water will pass by the resin bag. As a result, the capacity will not be fully used, and the conductivity will increase.
 - b Reattach the lid.
 - c Secure the mixed bed cartridge with your feet.
2. Slightly push down the lid and turn it clockwise by a 1/8 turn until it engages.
 - » The lid is locked.



2. Re-install the connection hoses at the raw water inlet and the pure water outlet.
3. Open the shut-off valve at the raw water inlet of the mixed bed cartridge.
4. Open the shut-off valves at the raw water inlet and the pure water outlet.
5. Open the shut-off valves at the water inlet and outlet.
6. Vent the cartridge by means of the green lever.
7. Check the system for leaks.
 - » The system is ready for operation.

8 Maintenance and repair

Maintenance and repair includes cleaning, inspection and maintenance of the product.



The responsibility for inspection and maintenance is subject to local and national requirements. The owner/operator/operating company is responsible for compliance with the prescribed maintenance and repair work.



By concluding a maintenance contract you make sure that all maintenance work will be carried out on time.

- ▶ Only use genuine spare and wearing parts from Grünbeck.

8.1 Cleaning



Only have the cleaning work carried out by persons who have been instructed in the risks and dangers that can arise from the product.

8.1.1 Exterior cleaning

NOTE

Do not clean the product with cleaning agents containing alcohol/solvents

- Plastic components will suffer damage.
- Varnished surfaces are affected.
- ▶ Use a mild/pH-neutral soap solution.
- ▶ Use personal protective equipment.
- ▶ Only clean the outside of the product.
- ▶ Do not use any strong or abrasive cleaning agents.
- ▶ Wipe the surfaces with a damp cloth.



Avoid water on the housing/display of the conductivity measuring cell

- ▶ Dry the surfaces with a cloth.

8.1.2 Interior cleaning

- ▶ After each replacement of the resin bags, clean the screen elements located at the bottom and in the lid of the mixed bed cartridge (refer to chapter 7.2.3.1).

- ▶ Wash out the sieve elements with water and let them dry.
- ▶ Clean the flow stabiliser if it is very dirty.
(refer to chapter 7.2.3.2).
- ▶ Clean the desaliQ inline filter module after each use of the mixed bed cartridge
(refer to the operation manual of the desaliQ inline filter module).
- ▶ Flush the connection hoses if they are very dirty.

8.2 Intervals



By way of regular inspections and maintenance, malfunctions can be detected in time and product failures might be prevented.

- ▶ As owner/operator/operating company determine which components must be inspected and maintained at which intervals (load-dependent). These intervals are subject to the actual conditions such as: water condition, degree of impurities, environmental impacts, consumption, etc.

The interval table below shows the minimum intervals for the activities to be carried out.

Task	Interval	Tasks
Cleaning	After each use	<ul style="list-style-type: none"> • Clean the outside of the product • Drain the product • Flush the product • When used for “circulation water treatment”: clean the screen element • Grease the O-ring in the lid, if necessary
Inspection	2 months	<ul style="list-style-type: none"> • Visual/functional check • Visually check for leaks • Read off the conductivity
Maintenance	6 months	<ul style="list-style-type: none"> • Visual/functional check • Leak test • Grease the O-ring in the lid • Check the conductivity meter for accuracy • When used for “filling with drinking water”: clean the screen element
	as needed – in case of impurities	<ul style="list-style-type: none"> • Refer to semi-annually • Clean the flow stabiliser
Maintenance and repair	5 years	<ul style="list-style-type: none"> • Replace the battery of the conductivity meter • Replace the seal (O-ring) in the lid

8.3 Inspection

You as owner/operator/operating company can do the regular inspections yourself.

- ▶ Carry out an inspection at least every 2 months and proceed as follows to do so:
 1. Visually check for damage and corrosion.
 2. Check the mixed bed cartridge and the connections for leaks.
 3. Check the indicated conductivity (conductivity value)
 4. Carry out a functional check.
 - a Make sure that the shut-off valve (raw water inlet) as well as the unlocking and venting lever are easy to operate.

8.4 Maintenance

Regular work is required in order to ensure the proper functioning of the product in the long term. DIN EN 806-5 recommends regular maintenance to ensure trouble-free and hygienic operation of the product.

8.4.1 Semi-annual maintenance

Proceed as follows to carry out semi-annual maintenance:

1. Check the mixed bed cartridge and the connections for leaks.
2. Lubricate the seal in the lid using silicone grease or silicone spray (care solution).
3. Check the measurement accuracy of the conductivity meter.
4. Clean the screen element and the flow stabiliser, if necessary.

8.5 Consumables

Product	Quantity	Order no.
desaliQ resin bag, 6 l	2	707 435
desaliQ inline filter elements (5 µm) with spare O-rings for support mesh	6	707000020000
2x batteries LR44, 1.5 V (for conductivity meter)		WZ9-790045e.002

8.6 Spare parts

For an overview of the spare parts, refer to our spare parts catalogue at www.gruenbeck.com. You can obtain the spare parts from your local Grünbeck representative.

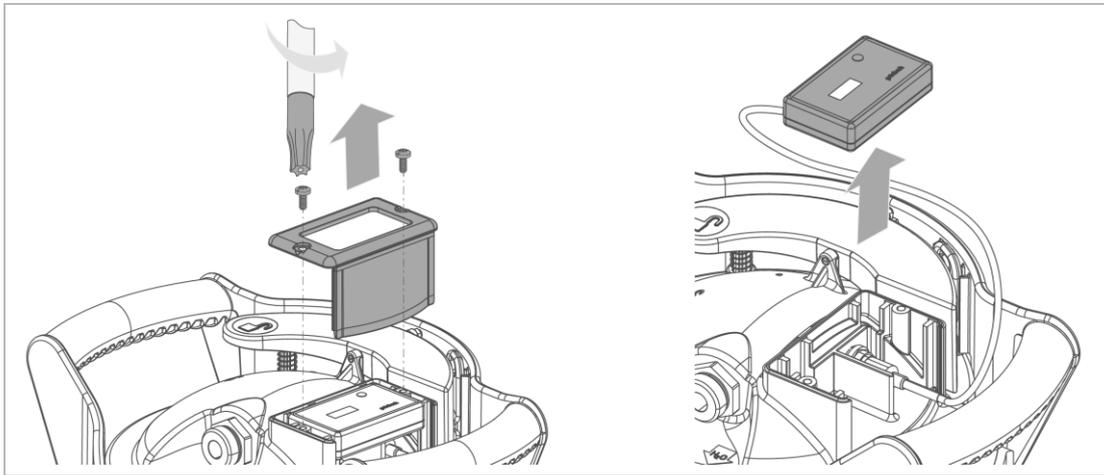
8.6.1 Removing the conductivity meter



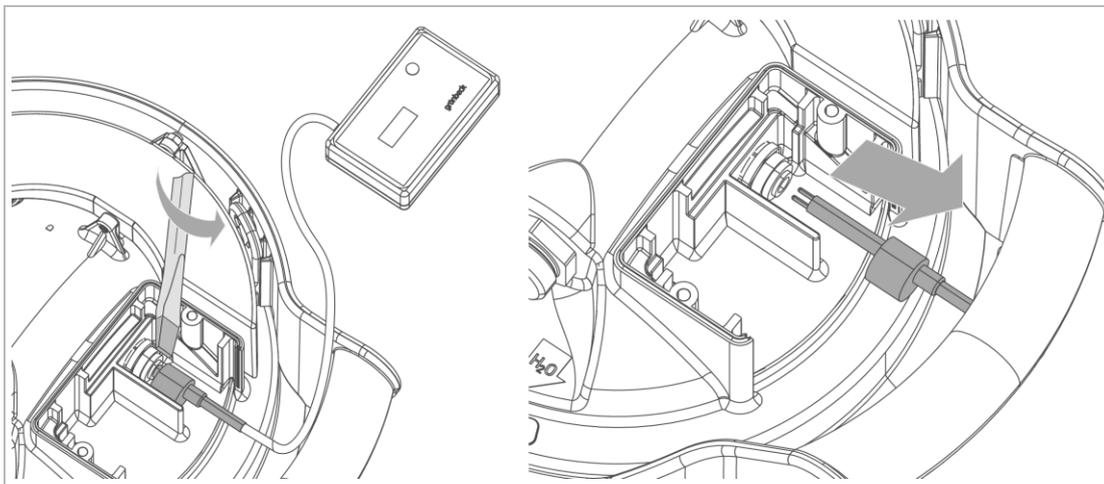
In case the conductivity meter is defective, the display of the conductivity meter indicates **Err.**



► Proceed as follows to remove the conductivity meter:



1. Loosen the screw connections at the cover of the conductivity meter.
2. Remove the cover.
3. Take out the conductivity meter.



4. Press the retaining ring of the quick connector (using a flat-head screwdriver) and at the same time carefully pull out the conductivity sensor.

8.6.2 Replacing the battery

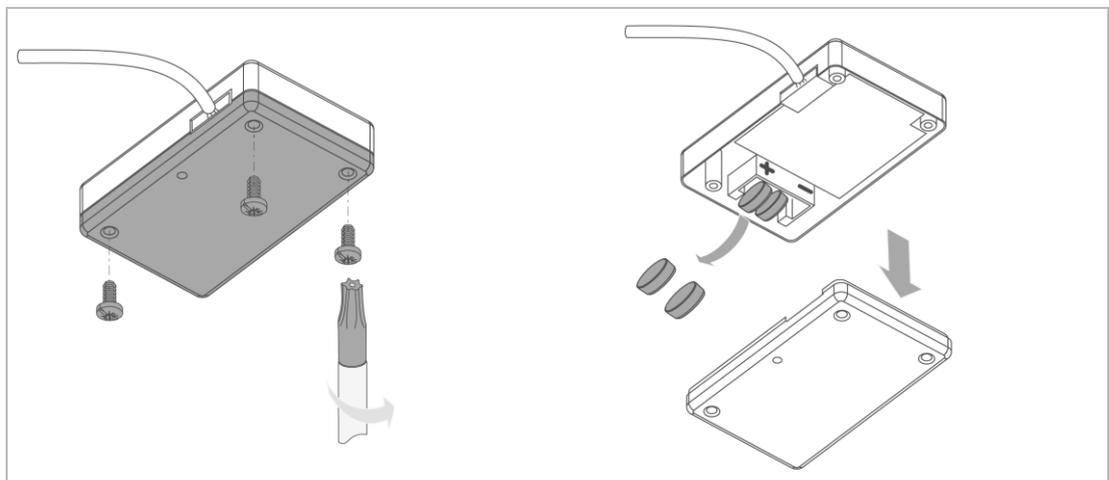


In case the battery is low, the display of the conductivity meter indicates **Lob**.

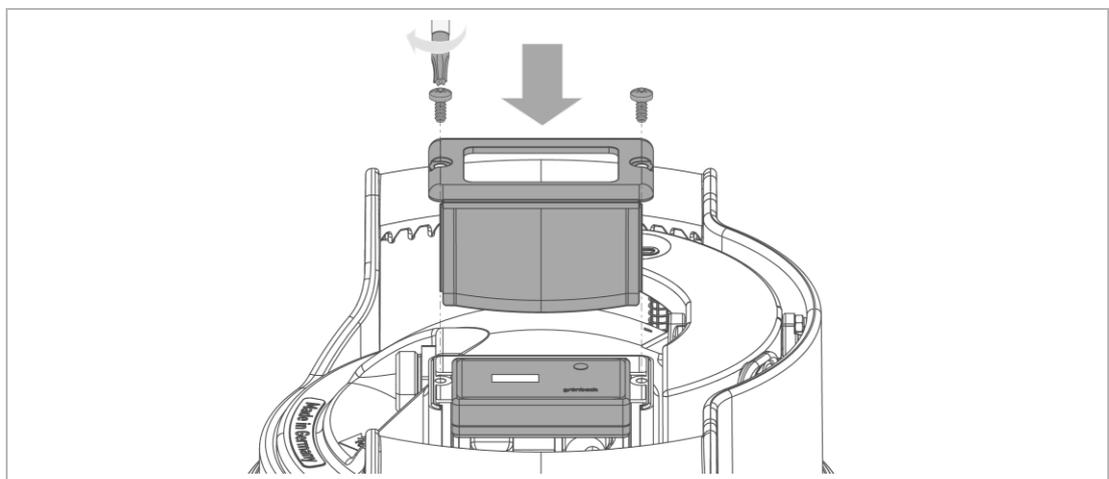
There is no need to remove the conductivity sensor in order to replace the batteries.



► Proceed as follows to replace the batteries:



1. Loosen the screw connections of the lid.
2. Remove the used batteries.
 - » You can dispose of the used batteries at your local recycling facility.
3. Insert the new batteries (refer to chapter 8.5). Pay attention to the correct polarity.



4. Close the conductivity meter by way of the lid.
5. Insert the conductivity meter into the mixed bed cartridge.
6. Fix the conductivity meter with the cover and the screw connections.
 - » The batteries are replaced.

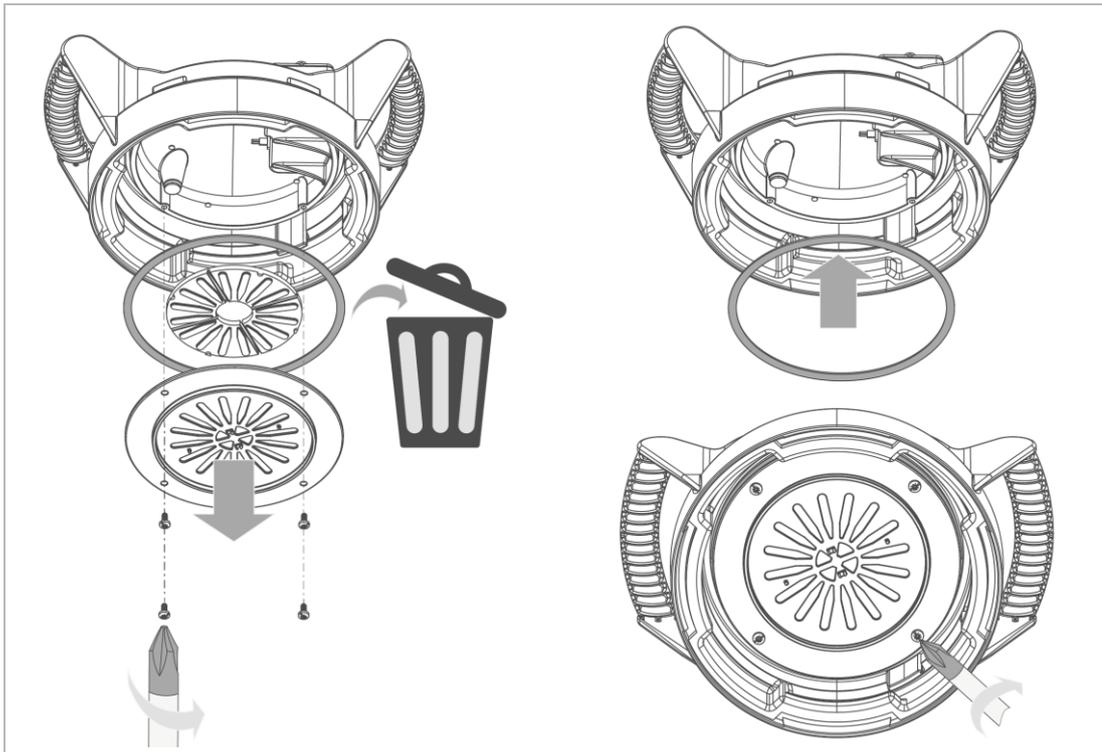
8.7 Wearing parts

Wearing parts are listed below:

- Seal in the lid
- Flow stabiliser

Product	Quantity	Order no.
Sealing rings with care solution	5	707 688e
Support mesh including O-ring (desaliQ inline filter module)	1	101 631e

8.7.1 Replacing the seal in the lid



1. Loosen the screw connections of the screen element.
2. Remove the screen element.
3. Take out the worn seal and discard it.
4. Insert the new seal - lubricated with care solution.
5. Secure the screen element by means of screw connections.

9 Troubleshooting



CAUTION

Hot surfaces when used during ongoing heating operation.

- Surface temperatures can reach up to 65 °C – risk of scalding.
- ▶ Allow the components to cool down before carrying out any work on components.



If a malfunction cannot be eliminated, the technical service personnel can take further measures.

- ▶ Contact technical service (refer to inner cover sheet).

Troubleshooting	Explanation	Remedy
No flow	The shut-off valves are not fully open	▶ Fully open the shut-off valves
Exchanger capacity low	A water softener or a phosphate system is installed upstream	▶ Connect the mixed bed cartridge directly to the raw water network
	Contaminated raw water	▶ Install a filter upstream and completely flush the lines ▶ Clean the screen elements at the bottom and in the lid
	The mixed bed cartridge has not been fully vented	▶ Fully vent the mixed bed cartridge
	The mixed bed cartridge is exhausted	▶ Replace the resin bags
The residual conductivity increases rapidly after a long period of operational downtime	Re-ionisation has occurred	▶ Let the water run off unused until the conductivity decreases
The flow is very low	The hose line is kinked	▶ Reinstall hose line
	The hose line is clogged	▶ Disconnect the hoses from the system and thoroughly flush them
	The screen elements are clogged	▶ Clean the screen elements at the bottom and in the lid
The flow is very high	The flow stabiliser in the raw water connection is defective	▶ Replace the flow stabiliser
The residual conductivity has exceeded the limit value	The mixed bed resin is exhausted	▶ Replace the resin bags
High conductivity despite new resin bags	Resin bags were inserted incorrectly	▶ Insert the resin bags correctly
	The flow is too high	▶ Refer to “the flow is very high”
Tank is dripping in the lid area	Impurities in the sealing area or at the O-ring in the lid	▶ Clean and grease the sealing area and the O-ring
	The O-ring in the lid is worn	▶ Insert a new (greased) O-ring
Increased conductivity is indicated at higher temperatures	The conductivity meter is not temperature-compensated; use in heating operation with higher temperatures (max. 65 °C)	▶ Check the conductivity when the temperature is in the normal range (max. 25 °C).
The conductivity meter indicates Err	The conductivity meter is defective	▶ Check the plug-in connections of the conductivity meter ▶ Replace the conductivity meter, if necessary
The conductivity meter indicates Lob	The batteries are depleted	▶ Replace the batteries

10 Decommissioning

10.1 Temporary standstill

If the mixed bed cartridge is taken out of operation for a short time, e.g. after filling the heating system with drinking water, the points below must be complied with:

1. Shut off the drinking water inlet and the pure water outlet or the bypass connection.
2. Drain the mixed bed cartridge at the lower connection.
 - » Dirt particles are washed out and the mixed bed cartridge is depressurised.
3. Keep the mixed bed cartridge hydraulically connected.

10.2 Decommissioning

In case the mixed bed cartridge is taken out of operation between assignments, the following points must be observed.

1. Shut off the drinking water inlet and the pure water outlet or the bypass connection.
2. Drain the mixed bed cartridge at the lower connection.
 - » Dirt particles are washed out and the mixed bed cartridge is depressurised.
3. Remove the connection hoses.
4. Leave the resin bags or the filter module in the mixed bed cartridge.
5. Transport the mixed bed cartridge in an upright position – do not tilt it.
6. Protect the mixed-bed cartridge from mechanical damage and environmental impacts when storing it.

10.3 Restart/recommissioning

- ▶ Put the mixed bed cartridge into operation again (refer to chapters “Installing the product” 5.4 and “Start-up” 6).
- ▶ Check whether the resin bags or the filter module can be reused – e.g. if the downtime has been too long.
- ▶ Insert new resin bags and, in case of the filter module, new filter elements.

11 Dismantling and disposal

11.1 Dismantling the conductivity measuring cell (conductivity meter)

- ▶ Remove the conductivity meter from the lid of the mixed bed cartridge (refer to chapter 8.6.1) **Fehler! Verweisquelle konnte nicht gefunden werden..**

11.2 Disposal

- ▶ Obey the applicable national regulations.

Resin bags



Comply with supplementary sheet TDb-00084nt of the desaliQ resin bags which contains safety information and instructions on replacement and disposal.

- ▶ Dispose of the exhausted resin bags with your household waste.

Filter elements when the desaliQ inline filter module is used

- ▶ Dispose of the used filter elements with your household waste.

Packaging

- ▶ Dispose of the packaging in an environmentally sound manner.

Product



If this symbol (crossed-out wheellie bin) is on the product, this product or its electrical and electronic components must not be disposed of as household waste.

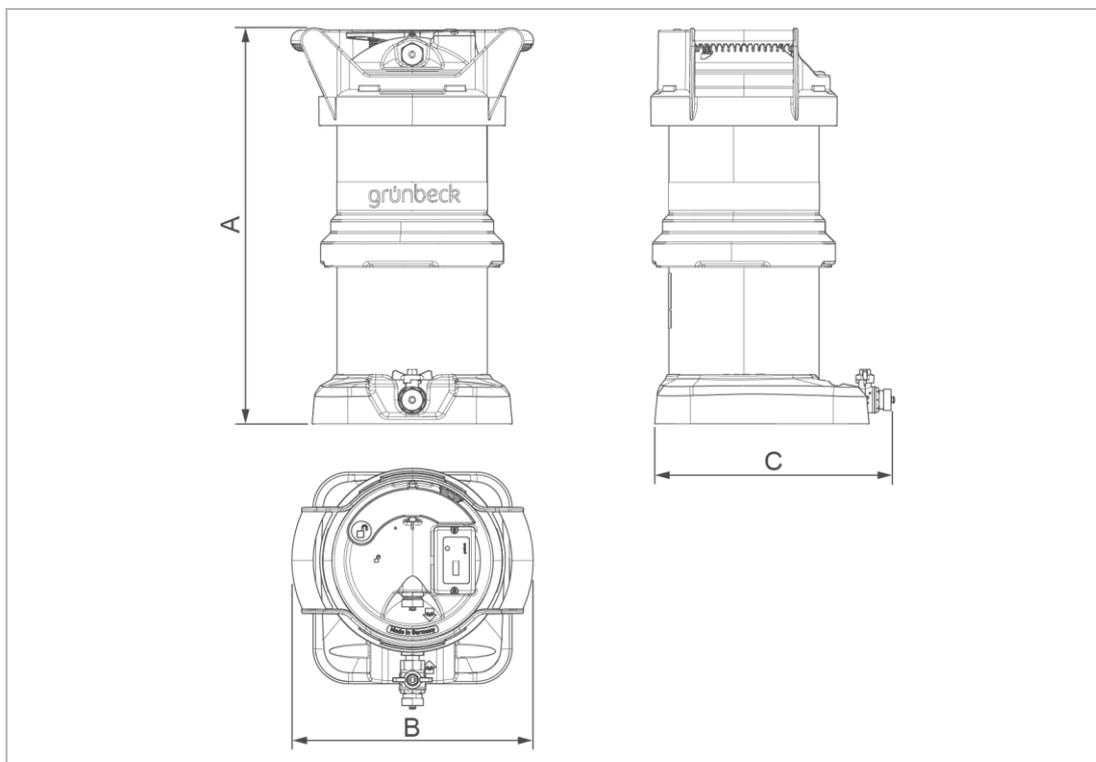
- ▶ Dispose of electrical and electronic products or components in an environmentally sound manner.
- ▶ If your product contains batteries or rechargeable batteries, dispose of them separately from your product.



For more information on take-back and disposal, go to www.gruenbeck.de.

12 Technical specifications

12.1 desaliQ:MB9

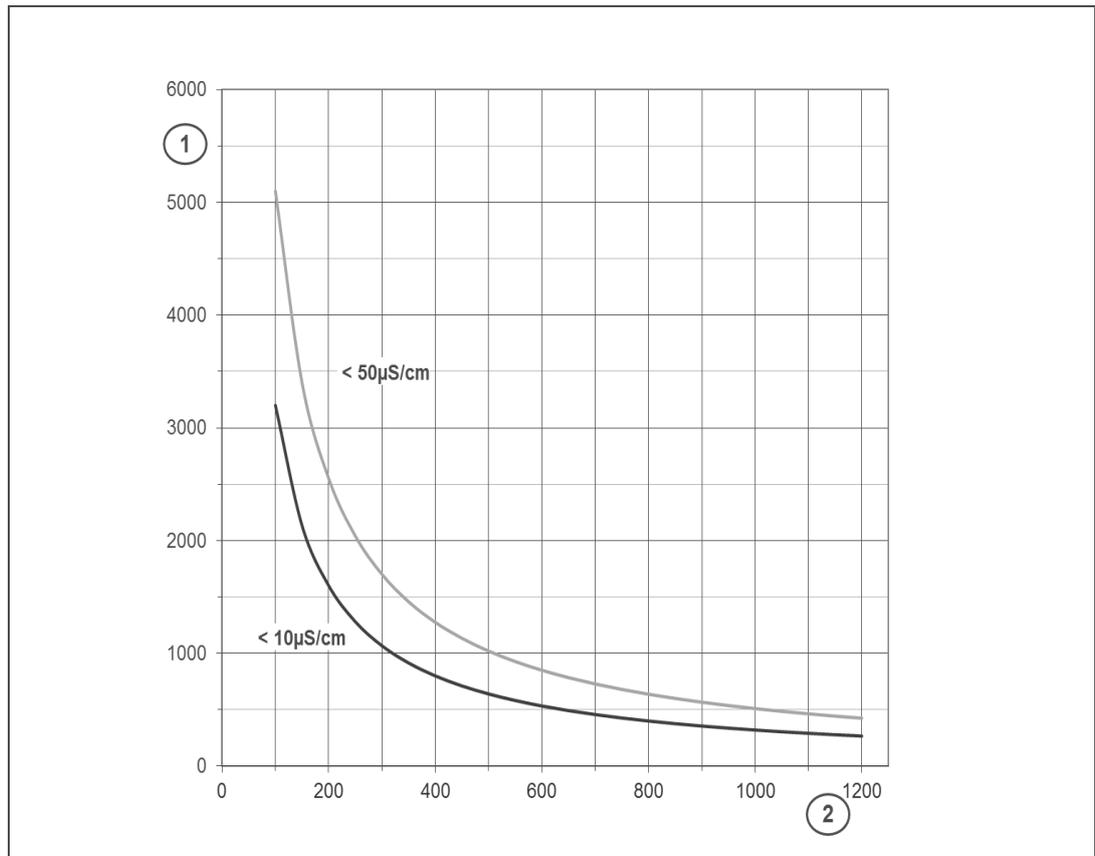


Dimensions and weights		desaliQ:MB9	
A	Height	mm	560
B	Width	mm	340
C	Depth	mm	330
	Number of resin bags	pcs	2
	Filling volume of mixed bed resin	l	12
	Shipping weight, approx.	kg	17
Connection data			
Nominal connection diameter		DN 20 (¾")	
Performance data			
Max. operating pressure		bar	4
Flow at Δp 1 bar		l/h	720
Capacity at < 10 μS/cm		μS/cm x m³	320
Capacity at < 50 μS/cm		μS/cm x m³	510
Nominal flow		m³/h	0.9
General data			
Water temperature		°C	5 – 65
Ambient temperature		°C	5 – 40
Order no.		707455000000	

Sample calculation:

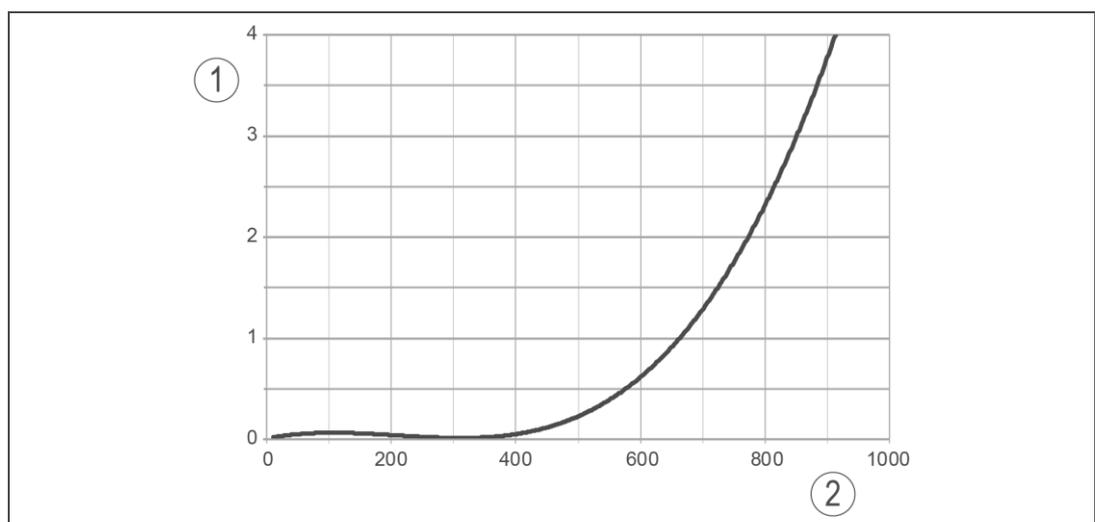
- Conductivity of the raw water: 500 μS/cm
- $320/500 = 0.64 \text{ m}^3$ (corresponds to 640 litres at 10 μS/cm)
- $510/500 = 1.02 \text{ m}^3$ (corresponds to 1020 litres at 50 μS/cm)

12.1.1 Capacity curves of desaliQ:MB9



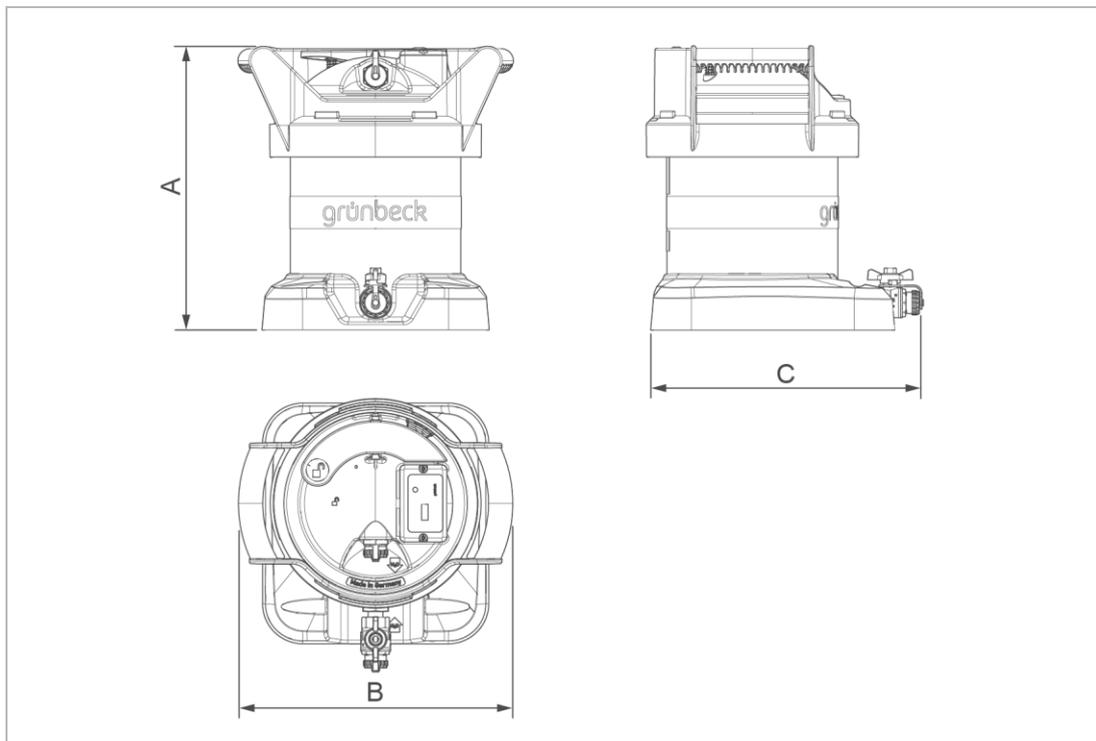
Designation	Designation
1 Volume of demineralised water in l	2 Conductivity of the raw water in $\mu\text{S/cm}$

12.1.2 Pressure loss curve of desaliQ:MB9



Designation	Designation
1 Pressure loss in bar	2 Flow in l/h

12.2 desaliQ:MB5

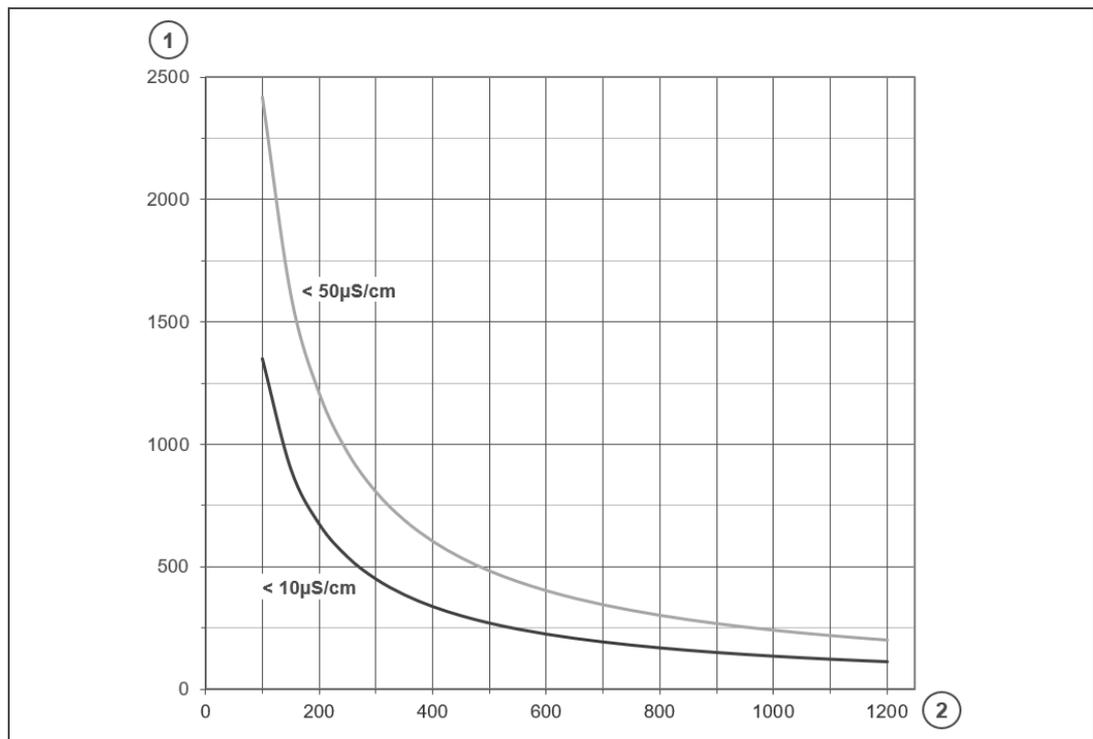


Dimensions and weights		desaliQ:MB5	
A	Height	mm	350
B	Width	mm	340
C	Depth	mm	330
	Number of resin bags	pcs	1
	Filling volume of mixed bed resin	l	6
	Shipping weight, approx.	kg	10
Connection data			
Nominal connection diameter			DN 20 (¾")
Performance data			
Max. operating pressure		bar	4
Flow at Δp 1 bar		l/h	400
Capacity at < 10 $\mu\text{S/cm}$		$\mu\text{S/cm} \times \text{m}^3$	135
Capacity at < 50 $\mu\text{S/cm}$		$\mu\text{S/cm} \times \text{m}^3$	242
Nominal flow		m^3/h	0.5
General data			
Water temperature		$^{\circ}\text{C}$	5 – 65
Ambient temperature		$^{\circ}\text{C}$	5 – 40
Order no.			707000060000

Sample calculation:

- Conductivity of the raw water: 500 $\mu\text{S/cm}$
- $135/500 = 0.27 \text{ m}^3$ (corresponds to 270 litres at 10 $\mu\text{S/cm}$)
- $242/500 = 0.484 \text{ m}^3$ (corresponds to 484 litres at 50 $\mu\text{S/cm}$)

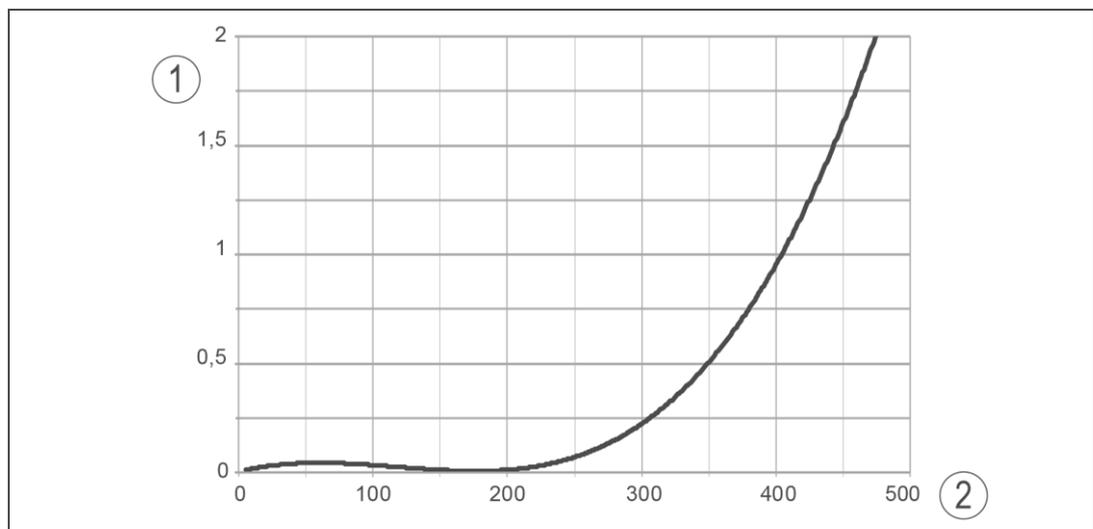
12.2.1 Capacity curves of desaliQ:MB5



Designation
 1 Volume of demineralised water in l

Designation
 2 Conductivity of the raw water in μS/cm

12.2.2 Pressure loss curve of desaliQ:MB5



Designation
 1 Pressure loss in bar

Designation
 2 Flow in l/h

13 Operation log

Mixed bed cartridge | desaliQ:MB _____

Serial no.: _____

13.1 Start-up/commissioning log

Customer		
Name:		
Address:		
Installation/Accessories		
Drinking water filter (make/type):		
Drain connection acc. to DIN EN 1717	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Floor drain present	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Safety device	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Operating values		
Conductivity of filling water	µS/cm	
Water meter reading	m ³	
Remarks		
Start-up/commissioning		
Company:		
Service technician:		
Company:		
Work time certificate (no.):		
Date/signature:		

13.2 Maintenance

Work performed

<input type="checkbox"/> Maintenance	Company: _____
<input type="checkbox"/> Repair	Name: _____
Date, signature _____	

<input type="checkbox"/> Maintenance	Company: _____
<input type="checkbox"/> Repair	Name: _____
Date, signature _____	

<input type="checkbox"/> Maintenance	Company: _____
<input type="checkbox"/> Repair	Name: _____
Date, signature _____	

<input type="checkbox"/> Maintenance	Company: _____
<input type="checkbox"/> Repair	Name: _____
Date, signature _____	

<input type="checkbox"/> Maintenance	Company: _____
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Date, signature _____	

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Date, signature _____	

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Date, signature _____	

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Date, signature _____	

<input type="checkbox"/> Maintenance	Company: _____
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Date, signature _____	

Work performed	
<input type="checkbox"/> Maintenance	Company: _____
<input type="checkbox"/> Repair	Name: _____
	Date, signature _____
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<input type="checkbox"/> Maintenance	Company: _____
<input type="checkbox"/> Repair	Name: _____
	Date, signature _____

Publisher's information

Technical documentation

Should you have any questions or suggestions regarding this operation manual, please contact Grünbeck Wasseraufbereitung GmbH's Department for Technical Documentation directly.

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